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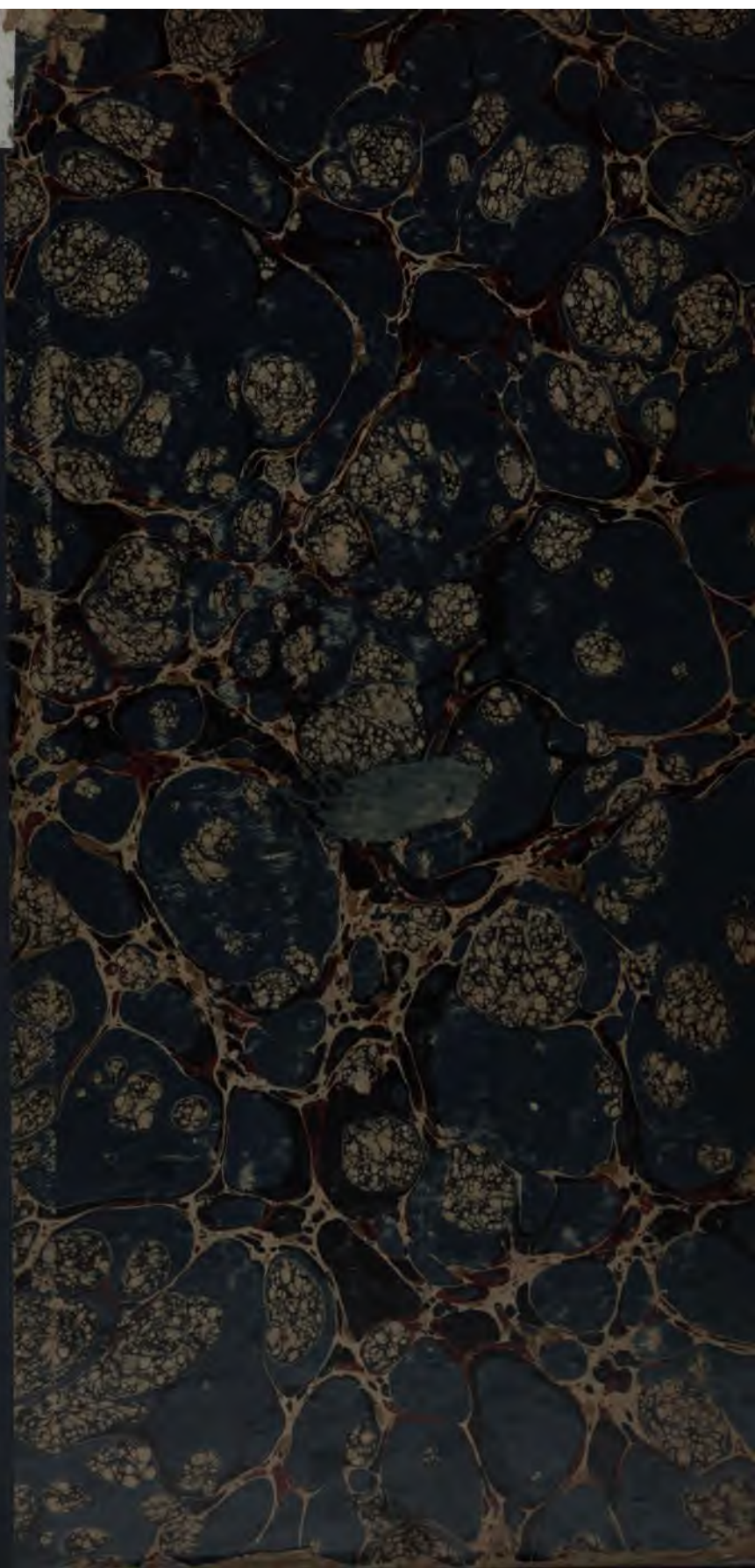
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BEFORE THE

Merrimack County Agricultural Society.

AT THE

FOURTH ANNUAL FAIR

AT

CONCORD, N. H., SEPT. 28, 1864.

BY DR. GEORGE B. LORING.

SALEM, MASS.

CONCORD.

FOGG, HADLEY & CO., PRINTERS.

1864.

REVISED

THE

AMERICAN GEOGRAPHICAL SOCIETY

OF

FOURTH ANNUAL FAIR

AND

FOURTH ANNUAL FAIR

OF THE GEOGRAPHICAL SOCIETY

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1873, Sept. 8.
Gift of
Hon. Emory Washburn,
of Cambridge.

ADDRESS.

Mr. President and Gentlemen of the Society:—

I have accepted the invitation to address your society on this anniversary with more than usual pleasure. We are living in an age of almost superhuman endeavor. Never before has the mind of man been so roused to action, in all the strange and eventful history of his efforts to elevate himself to the highest standard of material prosperity, and of moral and intellectual cultivation. Everywhere, by fearless devotion to every great work, in the workshop, in the studio, on the land and on the sea, by steam and wind and the electric currents, in the sunny and silent corn-fields, and on the wild and stormy battle-field, man is engaged in subduing all powerful natural forces to his own purpose, and in enlarging all the faculties which God has given him for the divine service which he is destined to perform on earth.

I rejoice that this restless and vigorous activity has reached that great occupation which is your admiration, your study, your livelihood. The vast ocean moves and heaves and tosses with its deep sonorous cadences, the mingling of the myriad voices striving to be heard; and from out the mighty bosom the wave rolls on and on until its ripple dies peacefully here at our feet. This quiet spot, with its beautiful repose, has not escaped the influence of the storm and struggle raging without and beyond. Each remote extremity feels its pulsation; and there is not a farm nor a workshop which is not roused from its lethargy of deepest seclusion by this striving spirit of enquiry, and by this renewed, and wide-

spread, and resistless, and feverish desire to eat the fruit of the tree of knowledge of good and evil. Exhausted, as it were with exploring other fields, impatient, as it were, of the independent march which agriculture has hitherto pursued along the path of experiment and practice alone, the daring and defiant mind of man has turned to exploring the hidden processes of nature, and has resolved to advance into that closed and mysterious volume, wherein is written that great law of life which maketh the grass to grow for cattle and herb for the service of man. Liebig and Voelcker, not satisfied with the confidence and faith and trust with which the farmer relies upon the great laboratory of earth and sky for the preparation of his fertilizers, the germination of his seed, and the development of his harvests, would explore the secret vital forces of the soil and record its capacity and necessity with the clearness of written law. Not content to leave the production of animals for specific purposes, where Bakewell and Colling left it, the profound Agassiz neglects for a moment his task of unfolding the mysteries of the dark and gloomy glacial period, and of opening leaf by leaf the history of animal and vegetable life as written on the stratified formation of the earth, and turns with sudden and renewed zeal to exploring the great laws of reproduction, and the causes which adapt to every varying want of man, the birds of the air and the beasts of the field. And inspired by this same desire for knowledge, for that practical wisdom, without which the farmer fails in his occupation, we have met here to discharge the duty which belongs to an agricultural society—not as a mere holiday pastime, but as the important and valuable service of those who would study and teach the art of agriculture.

✓ This, gentlemen, is the business of an Agricultural Society. The annual exhibition is and should be not only a gathering of the choicest of our flocks and herds and products, but a jubilee for our agricultural people. But there is a higher service still to perform. In the hands of these associations rests thus far all the experimental science of farming—that



science which, without exercising undue curiosity with regard to the laws of nature, observes and collects all the facts which may guide us in such an observance of those laws as will secure our prosperity and success in farming. And this is the science which we most need, "a science founded upon the accumulation of facts and the accumulation of experiments." For, as the Duke of Argyle said at the last meeting of the Highland Agricultural Society in Scotland, "we can never have agricultural science unless we know the facts with which we have to deal. * * * So long as we want a system of agricultural statistics, we are deficient in one of the very bases upon which an agricultural science can be founded."

Of the value of this kind of science to the farmer the most enterprising of our profession have long been aware. Agricultural societies have constituted the most useful agricultural schools for the last century. They have appealed to the practical agriculturist in the most direct and forcible manner, and they have furnished opportunities for observation to the old as well as the young. When well endowed they have diffused knowledge, both by publications and by exhibitions, and in this way have they enabled the land holder who is obliged to confine himself to his business to obtain his information, and to apply it to his daily practice. They constitute the best of schools; those in which all are teachers and all are learners. And they may be made the great depositories of theories confirmed by experiment, of facts obtained by observation, and of rules of practice laid down by successful industry, from which every farmer may draw his knowledge, and which will be as far superior to an organized school as their sphere is larger, and more diverse, and their teachers more numerous, and more devoted to the business of farming as an honest and honorable means of subsistence. ✓

In claiming for an agricultural society superiority over an agricultural college as a means of collecting and diffusing agricultural knowledge, I do not intend to undervalue the latter. The foundation of all knowledge of agriculture is the



accumulation of fixed facts, suggested perhaps by accident, discovered perhaps by science; but however obtained, proved or confirmed by the practical farmer on his land. Now to the records of an agricultural society may come the tests of every theory advanced, from a large territory, from a variety of soils, and from a considerable number of different modes of farming. A theory which bears this test may become a law at once for the farming community, and until it has borne such a test it is theory still, no matter what its origin may have been, whether college or farm-yard. While, therefore, an agricultural school can be no more than a collection of intelligent gentlemen, devoted to science as a guide to agriculture, and engaged in cultivating a single farm according to the best known principles, it must depend upon a wide-spread community of farmers for the last grand process of proving and diffusing its theories. And when we remember that agriculture is not an exact science, and cannot be until the skies and seasons are subdued by man, and that the facts discovered in the field by the diligent cultivator are often of more practical value than those laid down by the student in his closet, we shall not be surprised at the superior success which societies have thus far met with as compared with schools in the work of advancing agricultural education. I say *have thus far met with*, because I think there is valuable work yet to be done by the schools, which it would be well for our States to remember in founding their agricultural colleges.

Why, gentlemen, all the literature of agriculture goes to confirm this view. The books to which the farmer turns most eagerly for knowledge are those which contain just those facts to which I have referred as a part of the treasury of an agricultural society. Arthur Young, traversing all England for the materials out of which to write his admirable volumes; Jethro Tull, toiling with his own hands in order to extract from the soil itself the doctrines of horse-hoeing and drill husbandry with which to enrich his native island; Mr. Culley

devoted to the improvement of cattle as the best college in which to learn how to discuss their breeding and feeding; Fitzherbert, who although chief justice of common pleas, was, as he tells us, "an experienced farmer of more than forty years," and wrote the "Booke of Husbandrie;" and so the admirable writers of modern days all write from the great stand-point of experience. What richer fountain of agricultural knowledge can be found than the transactions of the Royal and Highland Societies? Where can a better lesson be read than is contained in those modest volumes issued annually by our local societies, and containing the recorded experience of the successful farmer of the neighborhood? We turn to this with confidence and hope, and we turn from it with new light and courage for the pursuit of our calling. Levi Bartlett, writing from Warner, N. H., Dr. Holmes, making his weekly record in a quiet town in Maine, furnish that kind of knowledge which, gathered from the experience of every surrounding farmer, is made useful to all farmers.—What a treatise on sheep-husbandry might be written by sitting at the fireside or roaming over the pastures of Vermont farmers, and taking notes of their experiences and labors in the business which they have brought to such perfection. What funds of information upon the cultivation of crops, the management of orchards, the use of manures, the conduct of the dairy, lie concealed in the farm-houses along these valleys and hill-sides. The practical teacher, and the truly scientific explorer know this. And the great naturalist of America recognizes its truth, when with constant and unwearied toil he gathered a long array of facts from the breeders and exhibitors of the remarkable collection of animals at Springfield a few days since, and stored them away as valuable material for his lectures and investigations during the coming winter. Agassiz, learning of Lang how to breed horses, and of Lathrop how to breed cattle and of Hammond how to breed sheep, was the greatest tribute of science to practice that has yet been seen; alike significant of the wisdom and



humility of the great *savans*, and of the sound sense and success of the intelligent farmers.

I beheld in this that rare combination of "practice and science" which should be the desire and motto of every farmer and every farmer's association, and is the foundation of the farmer's best knowledge. Let the example thus set be followed always and everywhere. Let our scientific teachers learn to respect the practical knowledge of the farmer; and let the farmer lay aside his jealousy of the learning of the schools. To this just and proper combination of mental forces, how would the earth unfold her secret, how would the fields rejoice under well directed cultivation, how would the whole animal economy of the farm be developed and improved, how would the whole business of agriculture be brought into subjection to systematic laws, and what was before dark be illumined by the highest light vouchsafed to man by the great Creator and Preserver of all. And not this alone. How would the farmer learn to respect his calling, and to feel that the work entrusted to his care is worthy of the most profound thought and the most careful investigation. I can conceive of the intellectual and moral and social elevation which would follow, and the material prosperity which would attend upon such elevation. For to us, of all people, free-holders, endowed with all the sacredness of domestic and civil rights, possessed of our own lands, dependent each for himself, on our own intelligence, is the opportunity given for this development and general diffusion of knowledge.

Without this combination, deprived of the accumulation of facts of which I have spoken, science in agriculture becomes powerless; with it, it becomes a most important ally to the farmer, in fact it is reduced to one mode of practice itself, and thus becomes of the highest value, and meets with its highest success. For it is easy to see why practice is so powerful in providing the best of agricultural knowledge and why it has thus far outstripped science in the advantages it



has bestowed. It is because the real foundations of agriculture cannot be explored by any human power. In whatever the farmer does he is obliged to recognize an influence which the hand of man cannot reach, which no investigation can fathom, no human power guide. Agriculture obeys the laws of nature, and can do no more than use the natural forces with ingenuity and skill. Science endeavors to explain them; and to ascertain if possible the natural laws upon which the farmer depends. In doing this it advances into that great region where lie the vital forces which are shut against all human intrusion. And on this account it is very apt to be overthrown by agricultural facts. Liebig goes on from one theory of fertilization to another, and the growing crops of the neighboring farmers pronounce them all to be false. Science may attend upon agriculture as a stimulus to the best exertion, as a guide in the use of fertilizers, as an aid in the selection of soils. But it is the patient, and prudent, and experienced farmer after all who knows what land he needs, has unbounded confidence in that great receptacle to which he consigns his manure, and to the vivifying power of that great mother into whose lap he casts his seed, and who gathers his crop before his scientific neighbor has half finished an analysis of his soils. It is the judicious observer of cattle and the wise and observant judge of their necessities and capacities, who, regardless of the theory of the physiologist, secures animals adapted to his own locality, and perpetuates and improves them by confining himself to his own herds for means of increase.

It is important to bear this in mind in our estimate of what the community requires in the way of agricultural education. We may so misdirect our attempts to enlighten the people on this matter as to lead them away from the farm instead of encouraging their hearts and strengthening their hands for the business of agriculture. We may become so confused and shaken in our trust in the laws of nature by our investigations as to lose that love of all her works, which lies at the founda-



tion of good farming. But if by steady progress in the accumulation of facts which are indisputable, and by patient devotion to the work of drawing sound deductions from those facts, the wonderful attractions of nature are revealed, and her unerring fidelity is confirmed, the student of agriculture may go forth from the college to his occupation, bound not by necessity to the drudgery of his farm, but devoted with all his powers to the business of agriculture as an ennobling, useful and profitable art.

In saying this I endeavor to estimate science aright. We all know the value of scientific men. We all know that they have revealed to us those great laws, a knowledge of which has elevated us above the groveling regions of superstition and ignorance and terror, into the high heaven of Christian admiration and reverence. They have taught us how to purify our cities, how to retain our health, and how to regain it, what we are in the scale of being, and to what a marvelous system of grand and subtle forces, in the animal and vegetable and mineral kingdom we belong. We know how much they have done to enlighten and civilize mankind. But when they enter with us upon the field of agricultural investigation, we ask them to pause with us before that unexplored region where lie the strange forces which we and they admire, obey and leave with the great God who made them.

Come now, O practical farmer with me, and see what you have done for the development of your calling, guided by the light of experience alone. You have discovered that remarkable system of drainage by which the hard and unyielding bed of clay becomes, through the agency of a simple circulatory tube, as obedient to the hand of the cultivator, as the warmest and most fertile loams. You have brought out of wild and useless classes of plants the nutritious grains and luxuriant fruits which nourish and delight. You have seized and tamed the species of animals adapted to your wants, and have produced every variety of breed which diversity of soil and climate and market may require. The



heavy short-horn makes haste to repay you for his food by a rapid production of beef. The hardy and patient Ayrshire devotes all her faculties to an abundant supply for your dairy. The clumsy draught horse learns readily the duty which you have imposed upon his phlegmatic family. The racer and roadster are ever alert in the service to which you have especially assigned them. You have learned the capacity of your lands, and understand what fertilizers they require, as well as you know the food which will best nourish your domestic animals. You have discovered how to subdue nature, and go forth to the first step of the process with axe upon your shoulder, as confident of the result of the contest as if the blooming fields were already before you. Out of your number came Cavour, who, in the intervals of his public life, was the most successful farmer of Northern Italy; and Mechi, whose practical operations as recorded have become one of the text books of farming; and Marshall, who learned to manage his own lands, and who declared that "attendance and attention will make any man a farmer;" and John Johnson, who has taught us all how to raise wheat on drained lands, and Parmentier, who was obliged to turn farmer before he could overcome popular prejudice and introduce the potatoe into France. From among your number have come the clear-sighted and unerring and quick-witted workers, who have made immediate application of every good suggestion, and have brought agriculture to a high standard. To you belong especially that class, who, having acquired their knowledge, reproduce it in some useful form for the practical benefit of mankind; that class whose minds are not so burthened with theories, that when the moment for action comes they lose sight of the very object for which their theories were constructed.

Bulwer, in one of his essays, tells an admirable story to illustrate the readiness with which some of you do, and all of you should, apply the knowledge which comes to your minds when they are intent on your occupation.



"A certain nobleman, very proud of the extent and beauty of his pleasure grounds, chancing one day to call on a small squire, whose garden might cover half an acre, was greatly struck with the brilliant colors of his neighbor's flowers. 'Ay, my lord, flowers are well enough,' said the squire, 'but permit me to show you my grapes.' Conducted into an old-fashioned little green-house which served as a vinery, my lord gazed with mortification and envy on grapes twice as fine as his own. 'My friend,' said my lord, 'you have a jewel of a gardener, let me see him.' The gardener was called—the single gardener—a simple looking young man under thirty. 'Accept my compliments on your flower-beds and your grapes,' said my lord, 'and tell me, if you can, why your flowers are so much brighter than mine, and your grapes so much finer. You have studied horticulture profoundly.' 'Please your lordship said the man, 'I have not had the advantage of much education: I been't no scholar, but as to the flowers and the vines, the secret as to training them, just come to me, you see, by chance.' 'By chance? Explain.' 'Well, my lord, three years ago master sent me to Lunnion on business of his'n, and it came on to rain, and I took shelter in the mews, you see, and there were two gentlemen taking shelter too; and they were talking about charcoal, * * and one said it had done a deal of good in many cases of sickness, and especially in the first stage of the cholera, and I took a note on my mind of that, because we'd had the cholera in our village the year afore, and I guessed the two gentlemen were doctors. * * And one of the gentlemen went on to say that charcoal had a special good effect upon all vegetable life, and told a story of a vine dresser in Germany, I think, who had made a very sickly poor vineyard one of the best in all those parts, simply by charcoal dressings. So I naturally pricked up my ears at that, for our vines were in so bad a way that master thought of doing away with them altogether. * * * Well, before I tried the charcoal on my plants, I went to our nursery-man, who has a deal of book learning, and I asked him if he'd



ever heard of charcoal dressing being good for vines, and he said he had read in a book that it was so, but he had never tried it. * * * He lent me the book, and I tried the charcoal in the way the book told me to try it, and that's how the grapes and the flower beds came to please you, my lord. It was a lucky chance that I ever heard those gentlemen talking in the mews, please your lordship.'

'Chance happens to all,' answered the peer, sententiously, 'but to turn chance to account is the gift of but few.'

"His lordship returned home, gazed gloomily on the hues of his vast parterres; he visited his vineries and scowled at the clusters; he summoned his head gardener—a gentleman of the highest repute for science, and who never spoke of a cowslip, except by its name in Latin. To this learned personage my lord communicated what he had heard and seen of the benignant effects of charcoal, and produced in proof a magnificent bunch of grapes, which he had brought from the squire's.

"'My Lord,' said the gardener, scarcely glancing at the grapes, Squire ——'s gardener must be a poor ignorant creature to fancy he has discovered a secret in what is so very well known to every professed horticulturist. Professor Liebig, my lord, has treated of the good effect of charcoal dressing to vines especially, and it is to be explained on these chemical principles,"—therewith the wise man entered into a profound dissertation, of which his lordship did not understand a word.

'Well, then,' said the peer, cutting short the harangue, 'since you know so well that charcoal dressing is good for vines and flowers, have you ever tried it on mine?'

'I can't say I have; it did not chance to come into my head.'

'Nay,' replied the peer, 'chance put it into your head, but thought never took it out of your head.'

His lordship knew very well that a man who makes good use of the ideas received by chance will make a still better



use of ideas received through study. He therefore discharged his learned but thoughtless gardener, and employed the observing and intelligent young man who had conducted the squire's plants with such brilliant success. You can imagine the result which followed.

The peer and the gardener have both learned the value of observation, the usefulness of theory and practice combined, and the folly of ascribing a successful experiment to chance. And we may learn from this lesson, to cherish those hints which are derived from experience, and to apply them with that activity and skill which make our successful, practical farmers. Ascribe nothing to chance, but, with minds ever open to new impressions, accept the thoughts of others, and use them with industry and skill in your daily toil.

I present this view of the value of practical information as the basis of our progress in agriculture, because it is the only foundation upon which we can build. We, as a people, are rooted upon our soil. We have the agricultural traditions of a long line of hardy, industrious and prosperous farmers. The laws by which they have subdued the earth are our textbook in all our operations on the land. The mode of cultivation by which they raised extraordinary crops, and their selections of animals by which they secured remarkable herds, are a part of our instruction, handed down by tradition, or imprinted on the farms which they bequeathed their children. We may dwell with delight upon the power of education to elevate and refine a people; we may elaborate our system of schools; we may spread knowledge broadcast over the land; but we should never forget that the best rules of New England farming were laid down here by the sturdy yeomanry whose strength civilized these hills, in whose hands the material prosperity of our State rested half a century ago, whose ample abodes still remain in our villages and along the roadsides, whose social position was won by solid merit, who constituted that intelligent rural population from whom the merchants, the lawyers and divines, and statesmen of our day

have sprung, and whose homes are still waiting for a return of that wealth and intelligence which long ago deserted them. We of New England should never forget this. In our busy and restless and ambitious life, we have poured all our best powers of mind and body into our towns and villages, and exhausted them in the counting room, or the forum, or in the hard toil of the inventive arts. We have forgotten our old rural homes—those broad fields, those overshadowing trees, that substantial New England dwelling, whose very presence even now tells of the staunch and reliable virtues of those who have long since gone to their rest. We should know that the charm of life is not in our cities and large towns. Neither our moral nor our religious nor our physical natures can be developed with that beauty of proportion of which man is capable, so long as we prefer the feverish excitement of the busy concourse of men to the healthy, and placid, and refining, and ennobling influences of a cultivated rural life. There are charms in the unceasing current of life which flows through the forum and the market place. There is a fascination, as Mr. Choate once said to me, in “the newspaper and the post office,” above the music of the sounding sea and the silence of the lonely shore. But, when we remember the annoyances which meet us at every corner, the petty strifes of men, the struggles and distresses, the efforts and disappointments, shall we not sigh for the rural respectability of our fathers, and exclaim with Cicero, “There at my Laurentium, I hear nothing that I repent to have heard, say nothing that I repent to have said; no hopes delude and no fears molest me. Welcome then life of integrity and virtue! *O, dulce otium, honestumque, ac pæne omni negotio pulchrius!*” We must learn once more to love the land; to love it as our fathers loved it, to love it as the people of old loved it, whose great men enjoyed their favorite retreats, and “listened many a returning spring to the nightingales that tenanted the dark ivy, and greeted the narcissus, ancient coronal of mighty goddesses, as it burst into bloom under the dews of heaven.” When



from our New England cities, which have received their life-blood from the country, there flows back a current of wealth and intelligence to beautify our towns, and cultivate our fields, we shall make our land still more the fit abode of a free and intelligent people.

And now one word in behalf of agricultural societies, as nurseries of this rural love and taste of which I have spoken. Not alone ambition, excited by a peaceful strife for supremacy on the fair grounds here; not alone the desire to excel, awakened by some successful competitor; not alone that useful knowledge which may be gained by the observation and discussion on occasions like this; not all this alone constitutes the benefit of your exhibition. There is the exhilaration which the blood receives from association; where, divested of all care, "face answereth unto face." These cheerful assemblies, do they not gild the way of youth, and make the old feel young again? Do they not enhance the value of our lands and crops and flocks and herds in our eyes, and do they not, moreover, give us renewed interest for the enjoyment of those possessions? Here, then, let us have our annual rural sports. And when the formalist or ascetic charges upon the people of New England a growing mania for the track and trotter, let us point to our hilly pastures, which produce the hardiest horses in the world, and then ask him whether, amidst the cares and toils of farming life, after diligent study of the more sober products of our fields and stalls, we may not take this other gift aright, and learn to develop and cherish, and enjoy, and protect that favorite animal, which is intimately associated with all our enjoyments and sorrows, and whose comfort in this world depends on the respect which a kind-hearted master knows how to entertain for him. Let this, then, be our New England rural sport, if need be, properly conducted as a feature of our exhibitions, and controlled by propriety, honesty and good judgment. But let us have our pleasure still, and not hope to rise to superior moral excellence by chilling the blood in our veins, and regarding the

sunny side of life as overgrown with frivolities, beset by temptation and blackened by crime. In this way shall we love our calling the more. In this way shall we educate ourselves into the bright and cheerful regions which belong to a free rural population, and in this way shall we learn how to make such anniversaries as this, more useful, more influential, more instructive, more agreeable and attractive. If we would know each other better, let us unite in giving new vigor to these associations; if we would know our occupation better, let us rouse all our faculties by joyous intercourse here, and thus become enthusiastic recipients of the knowledge which belongs to our occupation. For this association may be a source of much advantage to you as a fraternal assembly, all loving the land, all devoted to the honor of our State, all understanding the capacity of our people for advancement and for kindly social regard. Said Governor Holbrook, of Vermont, in an address delivered at the opening of the State Fair, in 1851:

"And now, farmers of Vermont, what is our object in coming together on this occasion? Is it not to become better acquainted with each other, and to form ourselves into a permanent organization for our own mutual benefit and improvement, and for the advancement of the agriculture of the State? Dr. Brewster, in enumerating the advantages which had resulted from the establishment of the British Board of Agriculture, remarks that "before the Board was instituted, the bond of connection among agriculturists was slender and served few useful purposes. Each trusted to his own information, and knew little more about the practice of conterminous districts than that of China, or the most distant country. The establishment of the Board removed at once all these evils and difficulties. It made farmers who resided in the most distant quarters of the Kingdom acquainted with one another, and caused a rapid dissemination of knowledge among the whole profession. The art of agriculture was brought into fashion; old practices were amended and new



ones introduced, and a degree of exertion manifested which had never before been exemplified on this island." All history teaches us that it is of the first importance in the accomplishment of great objects of improvement, to collect men together, and bind them in an association for that purpose. An institution for the improvement of our agriculture will bring the intellect of the State to a more powerful bearing upon that subject. Thus collected and organized, we shall see, and hear, and learn new things, and learn them in such a manner as to make an indelible impression, and to exert a practical influence. Instead of resting upon ways as good as any in our immediate neighborhood, we shall compare ourselves more extensively with others, and improve accordingly. An enthusiastic zeal will be awakened, useful knowledge in all departments of husbandry will be scattered broadcast over the State, our farms will be made more valuable, our homes more pleasant and comfortable, and our income more abundant."

As we meet thus in fraternal council and congratulation, and gaze upon the collections in the various branches which constitute an agricultural exhibition, we must wonder at and admire the forces which are constantly at work for our calling. How has the earth labored in all haste during the short summer season, "the sixty days of corn weather," to bring forth those fields, even now "white unto the harvest." With what patience and endurance and obedience has the animal kingdom resigned itself to its imperial master, and allowed its forms to be moulded, and its intelligence guided for the comfort and convenience and necessity of man. Summer and winter, day and night, seed-time and harvest, come and go for us and our fields. By fire and water, by decay and change, by secret and hidden chemical process, by heat and frost, and by the vast mechanical powers of the revolving globe, are our soils prepared for our cultivation. The ingenuity of man exhausts itself for us. The wheel, the pulley, the lever, the centrifugal and centripetal forces, every curve and angle are brought



into the construction of machinery to aid us in subduing a hard and obdurate soil, and in gathering in our crops. In nothing is the profound interest of man in the great art which feeds and clothes him made more manifest than in his constant endeavors to strengthen the hands of those engaged in it. The appeal to us is great. The good God opens his storehouse of land and sea and sky, and man dedicates his most cunning faculties—all that we may become intelligent and successful farmers.

From our own New England too comes a call which we must not disobey; New England, the mother of American arts, the director of American industry, the guide of American thought; New England appeals to us to develop by society and school, and discussion, and experience, and science, that art of all arts, by which she may feed and clothe her own people, and from which she may receive the sound and conservative thought and virtue of a well educated rural population. The responsibility which rests upon us, as her children, can hardly be measured. Her mills which obstruct the passage of every stream, her ships which cleave the waters along every shore, her schools which send their ray into every corner of the globe, her theories of religion and domestic and civil government which agitate a great people, have given her an eminent position, which demands, as the corner stone of her temple, a universal development of her agriculture on the best principles of practical science. Admire then, farmers, and study your art. And when that time shall come, as it inevitably will, in which the true merit of New England shall be weighed in the balance, and the power shall be assigned to her which she has won by her genius, it shall be found that not only in schools and in all mechanical ingenuity, not only in theories and speculations does she excel, but that her sons have learned how to adorn her hill-sides and enrich her valleys with the products of well directed agriculture. So shall she maintain her proud position among the nations of the earth, resting still upon those sturdy virtues which brought

her into existence, and have inspired her sons to lay down their lives if need be, in every work which might enlighten and elevate and christianize mankind. So shall we, her children, according to the measure of our calling, receive the reward of "good and faithful servants."

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Loring Geo. B.

ADDRESS

BEFORE THE

Essex Agricultural Society,

BY

Bull
GEORGE B. LORING.

PUBLISHED BY ORDER OF THE SOCIETY.

NEWBURYPORT:
HERALD JOB PRESS—COR. STATE & MIDDLE STS.
1858.

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ADDRESS

BEFORE THE

Essex Agricultural Society,

BY

Bailey
GEORGE B. LORING.

PUBLISHED BY ORDER OF THE SOCIETY,
DECEMBER, 1858.

NEWBURYPORT:
HERALD JOB PRESS—COR. STATE & MIDDLE STS.
1858.

1860, Sept. 26.

Gift of
Prof. James R. Torrey,
of Cambridge,
(Class of 1838.)

ADDRESS,

BY GEORGE B. LORING.

MR. PRESIDENT AND GENTLEMEN OF THE SOCIETY :—

A refulgent and luxuriant summer has brought us to that bounteous harvest season in which we are accustomed to come up to our annual festival, and take counsel together of our experiences in agriculture. We have indeed abundant reason to be grateful to an overruling Providence, which has smiled upon our endeavors, and has taught us, in a time of distrust and disaster, how true the earth and sky are to the olden promises.

But I should fail to express the foremost thought of every member of our society, did I neglect to dwell upon that bereavement which is brought before us most sorrowfully on this day, and on this occasion. In the midst of all our rejoicings and congratulations, there is one void which rests with a painful sense upon all who have devoted themselves to our fraternity. The place once filled by one of our most worthy Presidents, the Hon. Moses Newell, is now vacant. The manly and hearty enthusiasm which he imparted to our annual meetings, is gone. And it remains for us as a part of our duty, to emulate his example, and to sustain with his spirit the work which belongs to us as associated farmers of this his native county, for he was essentially the impersonation of the duty which we have taken upon ourselves. A farmer, born upon our soil, he

learned in his infancy the true genius of a farmer's life, and as he advanced to manhood, he grew in mind and body to the robust proportions demanded by the farmer's calling. His own lands were large, and the place was early assigned him of high authority in all matters of agriculture. He had a quick and sagacious eye, and a calm and correct judgment. A natural instinct seemed to direct his views aright, and from his genial and generous temperament, there went out a kindly interest in all agricultural enterprise, and a warm encouragement for all who were engaged in the work he loved so well. He may truly be called the public farmer of our county, for to him, of all men among us, was the public attention directed, whenever questions arose of general interest to the cause of agriculture. It was he who was selected to distribute among us improved breeds of cattle. It was he who spoke for our society in the State Board of Agriculture. It was he who represented our county honorably and well in the National Society. It was he who charmed the great farmers of the south and west by the cordial liberality of his feelings, and by the honest wisdom which characterized his thoughts. He had secured the warmest friendship of the late distinguished senator from the young and growing state of Texas, and in his intercourse with that liberal and sagacious statesman he seemed to cherish that tie which binds our ancient commonwealth in indissoluble bonds with the great agricultural regions which send from our farthest frontiers the vigor of perpetual youth to our mature republic. He bestowed upon our society and upon our county the benefit of his good reputation abroad, and of his good counsels at home. And while he served his state in her highest seats with honor, while he performed the part of a peaceable, honest and good tempered citizen, while he exercised those domestic virtues which are too sacred to be torn from the spot in which they were cherished, even for public admiration, while he displayed in all his duties an intellectual strength and precision which education alone cannot give, while he carried with him the harmonious influence of a truly kind heart, while he invigorated every public act in which he was engaged, while he encouraged a spirit of enterprise and improvement, while he abored always first for the good of others, he won a position

of high value and commanding excellence, as a sensible, liberal, honest and high-toned American farmer.

His services to our society can never be forgotten. Whatever station he was called on to fill, he filled it with fidelity. In our ranks he was a good soldier; and in presiding over our society, he was indeed in every point the farmer deliberating with his brethren.

It is not for him alone that I look around me in vain. Since we last met, my native town has been deprived of one of its most useful and exemplary citizens, and our society has lost one of its oldest and most valuable members. The Hon. William Johnson, of North Andover, has left behind him a reputation as an honest and upright magistrate, a conscientious and trustworthy adviser, and a prudent and thriving farmer. He belonged to a family distinguished for its substantial virtues, and in sustaining its character he performed his part well. He was one of a race of staunch and sturdy men, who, during the last generation, stood around the institutions of our community and of our common country, to protect and elevate them. He was a warm friend, an agreeable companion, a kind and liberal neighbor. The last acts of his life indicated his just appreciation of the means by which society is to be preserved and improved. As a member of our Board of Trustees, he took a high stand at a time when his associates were men who adorned our country; and he never lost that interest in our association which had led him through a long and active life to encourage the pursuits of agriculture.

I have felt that I cannot pay a more fitting tribute to the memory of these, our late companions, nor occupy your time more appropriately and profitably, than by considering the duties and opportunities which belong to us as an agricultural society.

Now, gentlemen, it was not simply to excite a spirit of emulation in the farmers of this county, it was not to create a rivalry here which might end in enriching the soil and embittering the people, it was not to record a chapter of fortunate accidents, a long list of mammoth fruits and monster animals, it was not to encourage an ill-regulated and unprofitable strife for excellence, that our fathers founded this society in which we

take pride, as in a rich inheritance. Do you suppose the wise and practical patriot and statesman, whose lofty duties in the service of his country, established an intimacy between the planter of Mount Vernon and the farmer of Wenham, which gave a glowing dawn to our rising republic, and shed the golden sunset hues of these great lives over American agriculture, had no higher aim than this, when he gave the first impulse to our foundation? It was the recorded experience of more than a quarter of a century which he desired to accumulate, and we are now living to enjoy the realization of those hopes with which his mind was filled. His dreams are our realities. Year after year the work has been going on, until the farmers of this county have the classics and text-books of their education in the pages of your transactions. Here, on this very soil, those facts have been gathered, which are important to the daily life of every man who dwells upon this same corner of the earth, and under this same arch of the sky. Could those men, who, when this society was formed, felt that a clay farm was a reproach and a stumbling block to agriculture, whose chiefest agricultural skill consisted in selecting the choicest soils, whose knowledge of manures extended hardly beyond their own barn yards, whose surface drainage destroyed the symmetry of their "meadows and fields," whose machinery consisted in the intelligence and untiring industry of the farm labor of those days, and whose success in agriculture in spite of all obstacles, should teach us a most encouraging lesson, could those men have pondered over the record of under-draining and deep ploughing, could they have studied the experiments made with all the fertilizers which sea and land have furnished from their ample stores, could they have learned how labor may be lightened and all farming operations be facilitated by labor saving machines, could their thoughts have been stimulated and instructed by the records of this society, if by nothing more, would not the dark corners in which they were groping have been filled with the light of noon-day? If the wheel of time could be reversed, and, waking them from their long sleep, could carry back to them the knowledge which we possess, were it only that rudely raked together in our own little circle, the design of our society would seem to them almost more than fulfilled.

For I look upon an agricultural society as in the highest sense an agricultural school, in which all are teachers, and all are pupils. And in this lies its most important duty. The best professor of agricultural chemistry, is he who comes embrowned from the compost heap, which by judicious application has forced a hundred bushels of corn from each of his well cultivated acres. The best teacher of the art of tilling the soil, is he, who has by long experience become acquainted with the habits of plants, from their tenderest infancy to the ripened harvest. The best expounder of agricultural truths, is he who has learned by diligence and perseverance, with a liberal and enquiring mind, what those economies are which give success to the farmer. The best farmer is he, who, while he becomes intimate with the laws of nature, and learns her mysteries so far as she will reveal them, has a quick eye for those useful discoveries and inventions which the ingenuity of man is constantly laying at the feet of agriculture. And herein lies the great end of agricultural education, get it where you will, from the school, or the club, or from those societies which excite investigation and experiment by the stimulus of competition.

And it is difficult for agricultural education to go further. For agriculture has not yet become a fixed science. The astronomer calculates the courses of the stars, and runs his eye with unerring precision along those erratic orbits which are traversed but once in centuries. The chemist reduces the solid earth, the waters, and the invisible air to their original elements, and learns the hidden affinities with the certainty of law. But for the farmer "the wind bloweth where it listeth. Thou hearest the sound thereof, but thou canst not tell whence it cometh or whither it goeth." The soils submit patiently to the most searching analyses, but they baffle all inquiry into that secret principle of life which the art of man has never reached, and which is known only to those acute and delicate investigators, whose thousand fibres draw forth that sustenance which gives stature to the mountain pine, and clothes the valleys with their living verdure. Men begin to vaunt themselves upon their success in supplying the human race with food, when a mysterious disease invades one great staple of their productions, and year after year rolls on without revealing to the anxious explor-

er the slightest remedy. One of the illustrious minds of the age applies the full power of science to supplying the deficiencies of every soil, and to furnishing each plant with its own peculiar food, but is finally obliged to acknowledge, that the relation existing between the earth and the fruits thereof, is not to be reached by any human power. The changing seasons send abroad their decrees, the winds exert their influences, the sun comes forth on its errand, night shuts down over the earth, the rain and the dews descend, heat and cold come in their appointed times, the earth goes on with its silent changes, all warning man that not as a dictator, but as a patient and willing servant can he hope to reap that reward which the soil will always yield.

The science of agriculture is therefore of all sciences the most uncertain, whenever you would pass beyond the bounds of actual experience. The details of farming may indeed be taught. The use of the implements of husbandry is something that must be learned. A knowledge of the proper rotation of crops, and of the adaptation of soils to the vegetable kingdom, comes from teaching and observation. The rules applicable to the proper proportions of animals may be got in the schools. Building and draining and planting and fertilizing, may all be instilled into the mind, until the student of agriculture may go forth ready to subdue the hardest soil, and filled with tastes which will make his farm agreeable to the eye, as well as an addition to the wealth of the community. So far perhaps agriculture may be made a science. And so far, an agricultural society is capable of furnishing the principles of that science.

In such a school as this, who are the professors and teachers? Is not every member who contributes his mite to the treasury of knowledge? I have seen a young man in our own county who by care and diligence and skill and method, has procured year after year, from soil yielding previously hardly enough to pay its taxes, a crop of turnips which gave him a handsome annual income. Is not this young man a good teacher in the science of agriculture? I have seen one of the most thriving towns in this section of the state enriched, until its whole population appears to be elevated above the thought

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of want, by a skilful devotion to its onion crop. Have the farmers of that town no claims to be considered capable professors in the school of agriculture? I have known an old orchard not far from us, to be brought from a state of almost hopeless decay and barrenness, to the most abundant bearing, by patient and continued cultivation. Is not this actual fact, established here in our own borders, a lesson which every farmer in this county can learn, and by which he can profit? I have admired from my childhood the fruitful fields, and the agricultural system of an ample farm in one of your towns, and have learned from it that there is in our own population, a capacity for farming which is surpassed in no section of our country. I have thought a better agricultural school than this farm could not be found. I have before me also, that most valuable of all citizens, one of what are called the yeomanry of our country. A farmer, born and educated to his calling, and filled with determination to discharge his duty well. The virtues of a New England home gave tone and direction to his earliest impulses. The sharp and bracing air of his native hills nerved his arm, and knit his manly frame into that sturdy symmetry which his destiny demands. Amidst the conflicts and trials, amidst the joys and sports of the district school, he laid the foundation of his knowledge, without advancing into that realm of letters which is beset with the snares of ambition, and is surrounded by all the temptations which the high mountains of society are sure to reveal. The great book of nature lies always open before him, and the relation which exists between the earth and its cultivator is the first lesson he learns from its pages. The capacity of his native soil becomes as familiar to his growing eye as the careworn form of his industrious father, from whom he learns year by year the practical business of agriculture. Among the animals of the farm he walks supreme and applies an unerring instinct to his estimate of their quality, and to the work of rendering them obedient to his will. He learns not only the art of tilling the earth, but the demands of the community in which he lives; and as he advances to that position which he is born to fill, he finds that the experience of his fathers, and the recorded trials of his neighbors, constitute that science which he is most eager

to learn. As he goes on in life, a busy world responds to his enquiries. The agricultural societies, which, in the best farming countries in the old world and the new, are founded for the benefit of all men like himself, pour forth their treasures at his feet. Subjected to his treatment, his ancestral acres unfold new riches at his hands, and he becomes, as he goes on in life, the impersonation of successful, economical, progressive agriculture. Will not this man, as a member of our society, serve as a teacher of the best truths of agricultural science? As he returns, day by day "warworn and weary" from his contest with nature, does he not accumulate practical wisdom, which, if imparted, will lighten the load man is forced to carry in every occupation in this toilsome world?

In estimating as I do, the value of the farmer as a teacher of agriculture, both in his private capacity and as an active member of a society, I would not be understood as opposed to agricultural schools and colleges. There is no royal road to learning in any of its branches. I have no doubt that a thorough agricultural education would save much misapplied time and labor and capital. I have no doubt that it would accelerate the progress of agriculture. I can easily imagine the effect it would have upon the farming interests of our own county, not only by the universal influence it would exercise, but by the stimulus it would give the leading and prominent members of the profession. It would make the good farmers better, and the poor ones good. And I can easily understand the advantages which those practical teachers of agriculture whom I have designated, might have derived from a thorough knowledge of the general principles taught in schools, not only by means of the actual acquirements and the increased wisdom given by culture, but also by means of that freedom from prejudice and that liberal spirit of enquiry and progress which lie at the foundation of all true success, and have enriched and elevated mankind by the patient toils of invention, and by the brilliant and startling achievements of discovery, and which education alone can give.

But then, gentlemen, comes the immense power of example. Why, I can take you to sections of your own county, where the quiet and unobtrusive efforts of a sagacious, industrious, prudent farmer have operated, like contagion upon all about

him, until he has become one of a community of thriving farmers. His well cultivated and fruitful fields, his carefully pruned orchards laden with fruit, his ~~thirty~~ and profitable cattle, his well ordered buildings, his walls and fences a protection to his lands, all lie like an open book before his neighbors, so that "he who runs may read." His farm is a treatise on agriculture which every man can comprehend, and which all men delight to study. And as he presents himself with the fruits of his industry at the annual exhibition of this Society, he does more than books and essays, more than schools and colleges, to awaken the agricultural ambition, and to advance the farming interests of this community. He is every day teaching by example, and is illustrating, moreover, that view which I have taken of an agricultural society as one of the best of agricultural schools.

That this kind of teaching is not in vain, let us look over this little section of the country, which contains the farming interest represented by this society. Here in Essex county, we have every kind of industry to tempt us away from agriculture. A long line of sea-coast, with good harbors, has been made famous in the history of commerce by the enterprise of our citizens, who swept the remotest seas when navigation was in its infancy, and it has been made illustrious in the annals of our country by the patriotic daring which gave our navy a name among the nations of the earth. Upon the banks of our rivers and streams, the capital of the manufacturer has built as it were with a magician's wand, the thronged and busy palaces of his trade. The mechanic arts have peopled our villages and planted their shops along all our beautiful highways; and yet in this county enclosing four large cities, flourishing towns, busy villages, with every inducement to neglect the soil, our people have taken a high stand as intelligent and enterprising farmers. In the cultivation of root crops and vegetables we have not been surpassed, as the premiums awarded at the last horticultural exhibition in Boston will testify. The largest recorded amount of carrots upon an acre were raised in this very town where I am now speaking. Nowhere has the onion been cultivated with more skill and profit than on these fields directly about us. The application of sea-

manure of all descriptions to the soil, has been carried to the highest perfection along our coast. Some of the best experiments in improving cattle and sheep have been made upon our farms. In horticulture and pomology the names of Cabot, and Manning and Ives, are quoted as authority. Whoever has heard of the liberal and energetic President of our Society, knows that at Lynmere there is a growth of forest trees planted by his hand, which is almost unequalled as "a thing of beauty," and as a triumph of skill over a hard and sterile soil. I can show you on the shore of Beverly, the best arranged farm buildings that can be found perhaps in New England, taking them together; and you will find there as choice a collection of cows as can be seen anywhere, and I think decidedly the finest Suffolks and flock of Dorkings that can be found this side of the royal farm at Windsor, from whence they came. Not far from us, overlooking our very show ground is a greenhouse and grapery, which Mr. Paxton might envy, even among the costly edifices of his lordly master at Chatsworth. Our experiments in under-draining have become so extensive, that a manufactory of tiles has been established in the county. At a trial of mowing machines during the past summer, on my farm, six different inventions were brought upon the ground almost at a day's warning, and since that time, two others have been sent to me for introduction to our farmers who are becoming proverbial for their enterprise in the use of machinery. We have at our exhibition to-day, one of only two tedders that have been imported into this country—a machine which in the simple matter of spreading hay, is of inestimable value to every farmer who would secure this important crop thoroughly, rapidly and economically.

I will not say that all these agricultural improvements, these indications of an agricultural ambition among us, have been brought about by our society—but I am proud to say there is not one of them which has not been encouraged by its liberality. The competition it has excited in mowing machines alone, has aided in a very great degree, the development of an instrument of labor from one degree of perfection to another, until our farmers have the prospect before them of being able to resign the scythe with all its hard toil, and with the constantly

Increasing expense attending its use. And will our horticulturists, our breeders of cattle, our reclaimers of waste lands, our cultivators of field crops say that they have not been stimulated by our society and enlightened by its publications? For myself, I believe it has become an institution which our farmers would not resign. I know that the associations which cluster about it, bringing to our minds] as they do the pleasant memories of our annual intercourse with each other, and connected as they are with the industrial pursuits of our wives and daughters, whose handiwork has given a peculiar charm to our exhibitions, are dear to us all. I value the knowledge it has accumulated, gathered together as it has been with the products of our own soil, as of priceless value to every enterprising and enquiring Essex county farmer.

I consider therefore this collection of practical knowledge, as one of the highest duties our society has to perform. I would have it continued by every means within our power, consistent with prudence and economy. We may rely upon it, that the general elevation of agriculture here, will be more promoted by this, than by any endowment of schools and colleges; for while these develop the faculties of the few, the efforts and influences of our society may be made to reach the humblest farmer who is striving to make the most of his single talent. I am confident that by a faithful discharge of this duty, we shall find our whole farming community advancing in intelligence and prosperity, and developing those resources which lie hidden in our soil. And I am encouraged to believe this, when I look abroad and see what other similiar associations have done, and what they indicate. In England, where agriculture has reached a degree of perfection unknown elsewhere, the greatest attention is paid to agricultural societies. There are but five agricultural colleges, and even these are buried in comparative obscurity, while the meetings of the Royal Agricultural Society are thronged by an interested crowd of husbandmen, who have felt the effects of this noble institution upon all their interests. In 1857, the number of visitors to the show at Salisbury amounted to over thirty-five thousand, all learners in a school which first roused the English mind to the true value of artificial manures, to the necessity of

under-drainage, to the importance of a thorough and careful investigation of the best method of feeding animals, and to the most successful modes of cultivation. It is impossible for me to lay before you all that this society has done to remove the prejudices and awaken the minds of the English farmers, both by its publications, and by its exhibitions of machinery which has been actually used upon the farm, of cattle which have been improved beyond a doubt in England, of products which high farming has brought forth upon that very soil. Let me tell you that one great era in English agriculture, dates from the opening of this society in 1839, when, as has been truly said, "farmers began to be familiarized with men of science, and men of science learned not to despise agricultural experience." It was an era also in our own agriculture, when the establishment of societies made farmers familiar with each other, and opened their minds to the importance of their occupation.

In the midst of all the higher duties which devolve upon us, let us not forget those humbler obligations which really lie at the foundation of all our work, and measure the amount of influence we are to exert. It belongs to us to cherish by every means in our power, a fraternity of feeling among our farmers. The love of land which we inherited from our Anglo-Saxon progenitors, is always attended by the desire for isolation, strong reliance upon self and exclusive devotion to one's family, which have always characterized that extraordinary race. Whatever tends to counteract an extravagant development of these qualities, binds society together with new bonds. The heart of man never expands until it feels the full force of the fact that it is but one of a community, and is warmed by the quick sympathies of neighbors and friends. The farmer living on his own land, has a sense of independence, which, if carried too far, might destroy all those ties which bind society together. The excess of individuality is his imminent danger. Prejudice and a fond adherence to old ways surround him on every side, with constant tendency to make his mind obtuse. In the calm and imperturbable spirit which threatens to encase him in an armour of steel, what a contrast does he form to the impulsive and excitable groups which are swayed to and fro by every

"wind of doctrine" that reaches their work-shops, and whirls them along with resistless current. In avoiding this extreme, he is threatened by another, from which associated labor alone can save him. It is the agricultural society which teaches him that his fellow-men have like passions and interests with his own. It is the agricultural society which extends his sympathies, and rouses his ambition, and enlarges his mind, and arms him against those foes which beset him behind and before to destroy himself and degrade his calling. The blood of our fathers makes us careful, prudent, successful farmers; the associations which they founded will make us intelligent, liberal and progressive ones.

In this respect every form of associated agricultural effort is of the highest importance. A town that sustains a farmer's club is sure to have its due proportion of good farmers. What invaluable allies to a county society they might be made! Local fairs cannot be too highly estimated, both as a means of bringing farmers together, and also as furnishing an opportunity for purchase, sale and interchange; and I trust the day is not far distant when the judicious recommendation made to you by your President, will be so far carried out, as to result in the establishment of monthly, if not weekly fairs, in some convenient location in the county. Let us in every way create a community of feeling here, a sort of *esprit du corps*, a desire to talk with each other, a desire to trade with each other, a determination to cultivate our own minds and supply our own markets, and Essex county will soon become as distinguished for its agriculture, as it now is for its wealth and enterprise in commerce, manufactures and the mechanic arts.

Above all things, it is our duty to be in the ordinary term of rather an uneasy age, sufficiently progressive. This is a dangerous word I know, inasmuch as progress too often means an entire accordance with our own opinions. There is a restless, short-sighted spirit, which we are very apt to dignify with the name of progress, but which is nothing more than a superficial love of excitement, novelty and change. Agriculture tolerates no such handmaid as this. And I cannot too warmly congratulate this Society that it has escaped its influences. When I consider the alacrity with which every invention and every

new branch of agriculture have been recognized, the liberal rewards which have been offered for all improvements, the generous consideration which has been shown careful breeders of our most valuable farm animals and the attention which has been aroused by the published essays of the society, I cannot but look with pride upon an association which seems blessed with perpetual youth, tempered with the wisdom and judgment of mature manhood. In its devotion to the cause of agriculture, it has kept pace with the best intelligence of the age, and has placed itself on an enduring foundation in the minds of the farming community. An agricultural society, which, while too many have yielded, and fatally too, to a passion which leaves no room for the homely fruits of honest farming, has discriminated between the different uses of the animal kingdom, deserves all praise. It has a due regard for all the interests which come under its cognizance. One of its great objects is the encouragement of breeding valuable animals for the profit of the farmer and for the advantage of the community, whether it be for the dairy, for draught, or for driving. In all this, it is observant of the most important interests submitted to it, and is as truly progressive in its recognition of all classes of animals as it is in the reward it offers the various branches of farming. It is the legitimate use of animals, and the legitimate growth of crops with which it is concerned. Our society offers liberal premiums for bulls—does it follow that we must have a bull-fight at every annual exhibition? We all value the horse and have encouraged the breeding of this important animal with ample rewards—will the most intelligent judges among us say that they require the trials of the track, in order to make up their decisions? All these things have their place, but it is not exactly at a farmers' exhibitino, or as part of a society, which should be actuated by an honest feeling of competition, based upon a love of excellence and a desire to advance an honorable and useful calling, and which has no more connection with the ardor of the race-course, than submitting the seed to the uncertain influences of the earth has with the hazards of the faro bank and the dice box. The two occupations cannot live together, neither is it necessary that they should for the benefit of any branch of industry. Not that I would

have our society discontinue the liberal encouragement it has always extended to the development of the American trotting horse, than which no animal is wiser, more enduring and patient, more courageous, nor more defiant of all obstacles. But as it values its own existence, as it regards the dignity of that occupation to which it is devoted, I trust it will never substitute a dangerous excitement for that healthy exhilaration which the farmer feels as he surveys the creditable products of agricultural industry and skill. There is enough in our exhibitions to occupy the attention of all who come to learn, enough to gratify the curiosity of all who come as spectators, enough to arrest the thoughts of all who come to witness the progress of that business upon which the subsistence of society depends. Anything beyond this is inappropriate. And I am constrained to believe that a desire to introduce amusements among us, which might for a time eclipse our more important duties, arises from an inability to comprehend the true object of our association. What do you suppose a solid Yorkshire man would say, were he called away from handling Lord Feversham's prize Short Horn bull, to witness a trial of speed between Mr. Tenbroeck's Prior, and the slashing mare Blink Bonny. Our trans-Atlantic neighbors know better than this. They breed thorough breeds, in almost every race of animals domesticated by man, they understand the glowing pleasures of the chase, they know all about the hearty joys, and the fascinating chances of the race course, the Derby, Epsom, Newmarket, are all entered in their calendar—but when the steam plough is brought into the field, when the earliest maturity of beef and mutton is to be considered, when the best methods of producing breeds of animals adapted to specific purposes are to be investigated, when cultivation and crops are to be examined, the Englishman closes his sporting book, and becomes an inquiring, progressive, successful farmer. And will any one say that the Englishman does not pay sufficient attention to the breeding of horses? Why, it has become a science with him, taught and developed not by converting his fair grounds into the turf, but by that care and intelligence which always receive their reward, and which may be imitated by us to our honor and profit. Let us then as a society encourage still the attention our farmers are giving these useful ani-

imals, and if any man doubts the benefit to be derived from it, let him witness the extraordinary success one of our own Essex farmers has met with by the exercise of that judgment and skill which have enabled him to produce a Childers, and to fill his stables with a collection of colts unequaled as a whole, from which one yearling animal has been sold at a price greater than was ever before obtained in New England. Let us do this, and I think we shall be progressive enough for the most ardent lover of horse flesh in the country; let us continue the encouragement we have always offered the legitimate improvements of agriculture, and I think we shall be progressive enough for the most zealous farmer in the country.

And now, gentlemen, let me say a word with regard to the opportunities we possess for discharging these duties to which I have referred. The law of consequences and compensation which controls the life of each individual, and, under the guidance of Providence, prevents our being the mere creatures of accident, directs also the course of associations of men, and furnishes them their opportunity for good or evil. By a long and honorable career, our society has secured a position which by elevating its influence, multiplies its chances for effort. I believe you will all agree that it has won the respect of the farmers of our county, and of the community generally. It has been deemed worthy of the most liberal consideration of many of our best citizens. A valuable library has in this way been collected which furnishes constant opportunity for reference and information. And a large agricultural interest has learned to be stimulated by our rewards and instructed by our advice and counsel.

But above all, our association has been deemed a worthy recipient of one of the best farms in our county, a legacy bequeathed to us for the promotion of the science of agriculture. I think I do not estimate this bequest from Dr. Treadwell too highly, when I look upon it not only as a compliment to the reputation we have won as a society, but as by far the most valuable means we possess for carrying on the work we have begun. A farm for experiment and observation—how much is involved in this design! Under the care of an intelligent farmer, and conducted by a competent committee, the

accumulation of facts which may be made there must be full of interest and instruction. We may learn within our own borders if we will, the changes of the seasons from year to year, the chances of crops in our latitude, the cultivation best adapted to our soil, the effects of manures, the expense and benefits of drainage, the relative value of products, without incurring that expenditure of time and money which renders experimental farming so hazardous and so generally unprofitable. I trust this golden opportunity will not be wasted; and I most earnestly urge upon you the adoption of a system which shall render the records of the Treadwell farm an addition to our agricultural literature, which shall be creditable to ourselves and profitable to those, who, coming after us, assume our duties and inherit our opportunities.

In conclusion, we should not forget the thousand associations which throng upon us as we come up to our annual festival. The picture of home, of fond pride and warm attachments, is constantly before us. The fabric wrought at the domestic fireside, has enwoven through all its fibres the simple taste which designed, and the simple virtues which attended its construction. Not a plant or an animal adorns your exhibition that has not been an object of human care, appealing to man's ingenuity for its culture, and to man's kindness for protection. They tell of spring, struggling to come forth, touching the earth with the first faint soft hues of life—of summer, warming and cherishing to the richest exuberance—of autumn, dashing its gorgeous colors with bold and lavish hand over the landscape, and crowning the laborer with a rich reward—of winter, whose night season of repose shuts down over the earth, and binds with domestic ties man with his flocks and herds into one great family of mutual dependence, filled with faith and trust. They remind us of those possessions which appeal to our kindest impulses, and whose memory is always ready to cheer us through the dull hours of absence and trial. Have you never heard from the care-worn and grey-haired man, the story of that tree which cast its shadow upon the roof of his native cottage, and the music of whose branches he has always heard when far away amidst the din of busy life? Have you never experienced the confidence and trust and the calm content which

the possession of the soil ought to bring? To those whose daily toil is devoted to the business of agriculture, the beauties of the farm may be hidden beneath the weight of care it brings; but above all, rises the genius of the occupation to find the ready response in man's nature, until the yoke seems to grow "light and easy." And when the temptations of an active world have drawn man away from his paternal acres into the severer labors of the forum or the market place, when he is tossed upon the stormy sea, or defies all danger in the battles of his country, his thoughts by day and his dreams by night carry him to those scenes of his youth in which the valley and hill, the pasture and woodland, the dewy morning and the quiet evening, the daily events of farm-life, prepared for his wearied soul a fairy land in which he can always find peace and repose.

"I flew to the pleasant fields traversed so oft,
In life's morning march, when my bosom was young,
I heard my own mountain goats bleating aloft,
And knew the sweet strain that the corn-reaper sung."

This is not the poetry of farming life, but it is the reality which outlasts all fleeting events, which remains when the burthens of the day are all forgotten, which never faded from the memory of the great statesman, who, when his eye was growing dim at the approach of death, would have his last look linger upon those fields which he learned to love, before honors and ambition had besieged his fretted soul. It is a reality which dwells upon my mind when I urge you to cherish and develop the agriculture of your county, as the basis of much of its prosperity and happiness, and as the parent of its most loyal and devoted children. It is a reality which you all possess, which your occupation has given, and which God grant no power on earth can ever take away.



New England Agricultural Society.

ADDRESS BY

HON. GEORGE B. LORING,

AND REPORT OF

COL. DANIEL NEEDHAM,

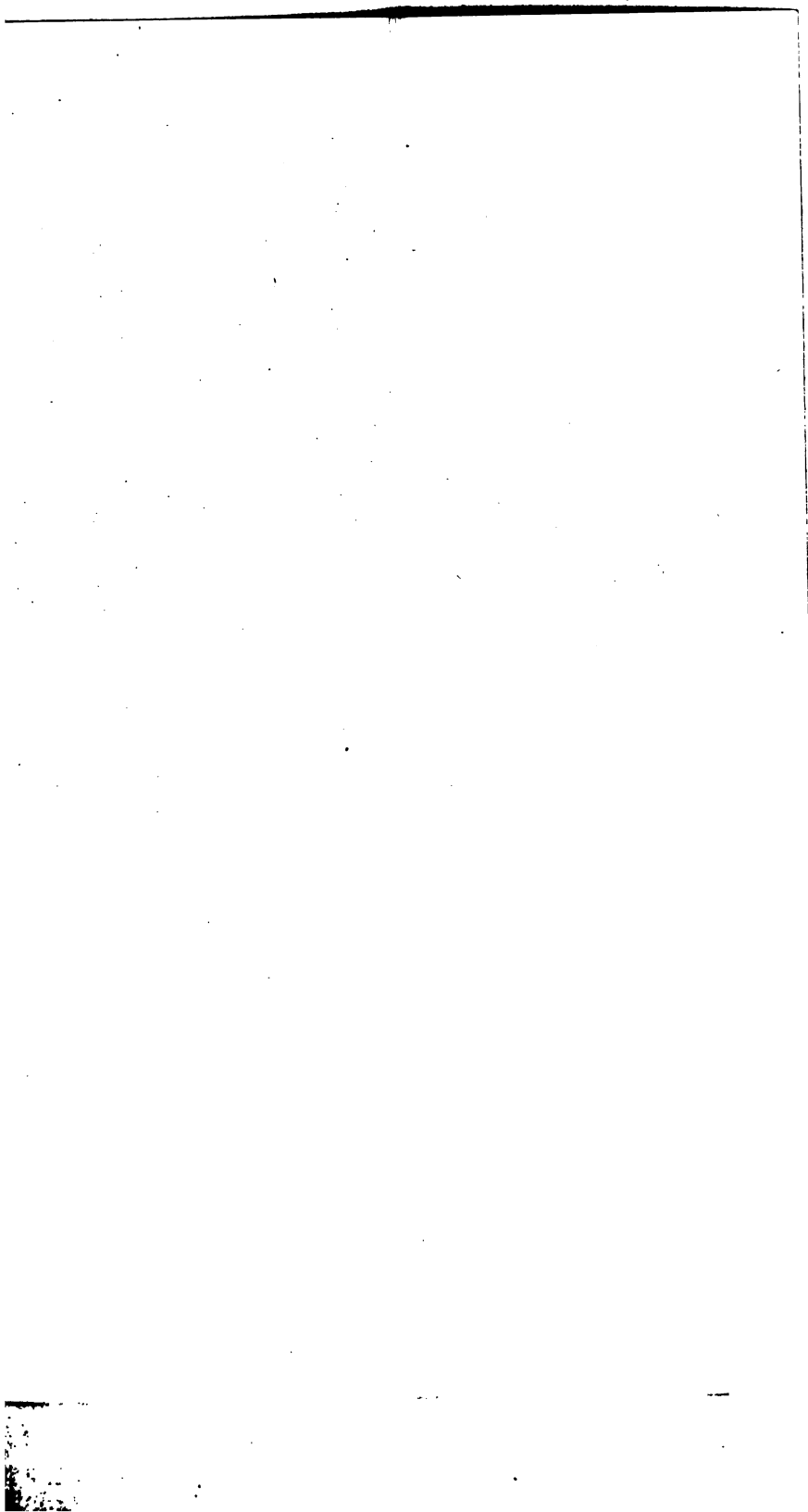
THE SOCIETY'S COMMISSIONER TO MEXICO.

FEBRUARY 3, 1891.

LOWELL, MASS.:
LOWELL WEEKLY JOURNAL, CLARENCE A. LOWELL, PUBLISHER.
1891.

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THE accompanying pamphlet will help to explain the character and importance of the work in which we are engaged, and its intimate bearings upon the public welfare. Yet deeply as the public interests are involved in this work, and highly as they will be promoted by its success, the burden of its prosecution has fallen mainly upon this Society. Indeed, this association makes a *specialty* of dealing with the various phases of the *live stock trade*, and its relations to the public well-being.

The evils we are exposing, and striving to remove, are sapping the health of the people, and sowing the seeds of disease and death over large regions of the country. And yet so little hold has our movement taken upon the public sympathies, that we have labored under pecuniary embarrassment at every step of our progress. We are destitute of money, and our Treasurer has been obliged to draw upon his private resources for the means of prosecuting this work.

This ought not to be. A cause involving such vast public interests should never be left *so to struggle*, through want of active sympathy and generous support.

The Secretary's Report has been sent to thousands of people, and more than two thousand newspapers throughout the country; and has been to a large extent republished and noticed by these journals. And this, with numerous other publications, together with lectures by the Secretary, has done much to awaken public attention to these evils.

We desire to push on this work with increased vigor; and can do so if the means are

determination to persevere in our humane endeavors, give us just claims upon the public confidence and support. The mere accumulation of this information, and the printing of it, is not enough. It must be sent broadcast over the country, and brought before the people, to let them see how the injuries inflicted upon dumb and helpless animals, recoil with the most terrible vengeance upon those who commit them.

And it seems to us, that the most eloquent appeal which we can make for aid, is the simple statement of facts contained in this report.

Whatever sum you may contribute, will be gratefully acknowledged on receipt by the Treasurer, at the office of the New England Agricultural Society, No. 8 Studio Building, Boston, Mass.

GEORGE B. LORING,
J. S. POTTER,
DANIEL NEEDHAM,
L. HOLLINGSWORTH,
EDWARD S. TOBEY,
A. A. MINER,
LORING MOODY,

Executive Committee.

Boston, 1874.



New England Agricultural Society.

ADDRESS BY

HON. GEORGE B. LORING,

AND REPORT OF

COL. DANIEL NEEDHAM,

THE SOCIETY'S COMMISSIONER TO MEXICO.

FEBRUARY 3, 1891.

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LOWELL WEEKLY JOURNAL: MARDEN & ROWELL, PUBLISHERS.
1891.

HON. GEO. B. LORING'S ADDRESS.

TUBERCULOSIS.

Gentlemen of the Society :—It is an important part of our duty to investigate the questions upon which the value of agriculture as an occupation depends. In no calling is more candid and dispassionate inquiry necessary, whether in relation to our crops or to the animal economy of the farm. And I have always been inclined to call your attention to any absorbing subject, either of cultivation or of health or disease, which has occupied the public mind. We have witnessed the rise and fall of many agricultural problems which have presented themselves to the community as of vital importance to the industry which we represent. Many of these problems have been solved by time and experience, and have vanished before the good sense of practical farmers. Some have proved to be valuable, and some are still under investigation.

The most important matter to which the attention of the community is now called is the existence, the contagiousness, and the extirpation of tuberculosis. This disease has long been known in the human family; and it has been accurately described from the earliest days of careful hygienic investigation, and its existence has been attributed to injudicious breeding when found in animals, to bad hygienic conditions, to direct infection, to unhealthy locality, and to any debilitating causes. In the human subject it has long been known that a crowded and ill-ventilated apartment, a damp and marshy locality, scarcity of good, nutritious food, a depressing mode of life, would often bring about a scrofulous condition in the form of miliary tubercles, destined to destroy the texture of the parts in which they accumulate, and to end in consumption. Among the causes of tuberculosis breeding has been included. In animals this may be a cause, i. e. : certain delicate breeds of animals, or certain delicate families of any one breed, may be peculiarly liable to this disease when exposed to the causes I have enumerated. In the

human family the disease occurs in persons so differently constituted that it is hardly safe to include breeding as a prominent cause. We have seen men of great constitutional vigor, with strong frames, full chests, vigorous physique, cut down, while the slender and delicate have escaped. We have seen the parents succumb in early or middle life, and the progeny live on in good health and to a good old age. The human constitution, as inherited, is governed by so many subtle and undefined causes that, fortunately for the affections of the race, man can defy the animal laws which would appear to control a judicious breeding of animals. We can therefore, with perfect propriety, select vigorous, well-developed animals for the continuance of the species; but we cannot control the affections of the human heart, and "forbid the banns" on account of what seems to us physical incongruity. Let us confine ourselves, therefore, to the animals which are provided for food and labor, and are subjected to diverse and discordant influences.

Tuberculosis in animals is evidently a self-generated disease. Its existence depends on locality, food, and the condition of the stable in which the animals are confined. It is not universal. All observers agree that it is found mostly in the older sections of the country—in the eastern states, and in those regions in which cattle are confined for dairy purposes. It prevails among the confined and well-fed cows in states when there is no disease whatsoever among the common and commonly-fed cattle of the country. It has not been found among working-oxen so far as we know. In Eastern Virginia, where cows are fed for the milk they will yield, it prevails, and it is so entirely confined to cows of this description, cows which are kept in stables and are fed on concentrated food, that the farmers of that section understand that cows subjected to this dairy treatment are liable to have their lungs and digestive organs loaded with miliary tubercles. The milk-producing breeds, such as Guernseys and Jerseys, with their delicate constitutions, are very apt to be tuberculous; while the lighter milkers, the Herefords and Devons, are rarely diseased. The facts now indicate that the abandonment of milk-farms would remove the disease.

I do not care to discuss the pathology of the disease; I leave that to scientific experts, and to the application of the microscope. To the veterinary surgeons who, for the last few years, have pursued

their investigations with great diligence and care we owe the accepted theory of infection, which has been confirmed by the skill and ingenuity of Koch. They have ranged themselves along-side of the most illustrious of that great scientific corps who have revealed the secrets of the human organism, and have explored the mechanism of the animal structure. To them it appears that tuberculous bacilli cannot multiply outside of the animal structure, but can be introduced into the bodies of various animals, and are productive of the tuberculous disease, constituting the exciting cause. The infection of these bacilli occurs when a definite predisposition exists, growing out of a cold followed by consumption or attending a scrofulous diathesis. It is supposed that the bacilli pass into the deep structures of the body and into the blood from the superficial tissues where they have made a lodgment, and are thence borne by the circulation into various parts of the body — the lungs, the mesenteric glands, the articulations. Consumption follows the inhalation of the bacilli, which accumulate in particles of dust in rooms where the sputa of phthisis have accumulated, and, retaining their vitality for a long time, gather in small colonies or large, and produce a slow or rapid disintegration of the parts. It is said that "at least twenty-five per cent. of adult human deaths are due to this disease, and at least fifty per cent. of us have it and then recover;" this is the opinion of one of the most eminent of our veterinary surgeons.

Tuberculosis can be propagated in various ways. It can be conveyed to the lungs by the inhalation of bacilli which are floating in the air of rooms in which consumptive patients have been confined, and whose sputa are converted into dust. A severe cold on the lungs furnishes a nidus for the fungi in large numbers or small, and they do their work slowly or rapidly according to the surrounding circumstances. Tuberculous patients can impart the disease to cattle as well as persons by filling the air with the dusty particles. And animals can affect human beings in a similar manner — on this point authorities differ. The bacilli can be conveyed to the human subject, as they say, by the use of meat or milk from tuberculous animals. It is found that a cow diseased with tuberculosis can give bacilli in the milk, and also in butter and cheese; and out of thirty-six cows ten were found to have bacilli in the milk and cream. This

milk has been fed to calves for a period of six months, and care has been taken that the calves were from healthy mothers. Pigs have been fed with the surplus milk. Twenty-five calves and twelve pigs have been killed, and forty per cent. of each have been found tuberculous; "the post-mortem examination showing very few morbid changes, perhaps two or three little nodules, no larger than a very big grape-seed, in the liver," which under the microscope "possessed the usual appearance of tubercles;" and bacillus was found, "*showing that the disease* was present, and would in most cases extend."

Rabbits and guinea-pigs have been inoculated with milk or cream containing bacilli and have died in the course of a few weeks; and "in a few instances these little animals had tuberculosis after having been inoculated when no bacilli were found in the milk." The danger from the use of tuberculous meat has not been studied as has that from milk, but it is undoubtedly true that the heat applied in cooking is sufficient to destroy the germs. Infection by inoculation may be accidental or intentional, and results in a nodule at the point of entrance—as is the case in the introduction of any morbid matter.

The diagnosis of tuberculosis in animals is very difficult, either in its early stages or later. We accept the following advice from an accomplished veterinarian, Dr. Peters, who spoke not long ago in this hall, on this subject:—

"In examining a cow, then, besides examining the lungs and noticing whether there is a persistent cough, note also whether the external lymphatics are enlarged and hard, observe whether she is free from lameness, find out whether she is constipated, and at other times affected with diarrhoea, learn if possible whether she is a nymphomaniac, commonly called a butter, ascertain if abortion is a frequent occurrence in the herd, and examine the udder, and see if it is nodulated or if it is what is commonly called gargety."

The remedies for tuberculosis, recommended by veterinary surgeons, are, in short:—

1. Protect the animals against consumptive keepers; and be sure that consumptive keepers do not conceal their disease.
2. Collect the sputum in pieces of woollen cloth or in little boxes which can be burned after use; or in spittoons wet with carbolic acid.
3. Destroy the diseased meat, and sterilize the milk.

4. Isolate all suspected animals.
5. Slaughter all actually infected animals.
6. Use no infected animal in breeding.

I may add: feed well, keep the stable clean and well ventilated, protect against cold, remove all depressing influences.

How far these six remedies are practicable I leave you to judge; the view I have given thus far has the sanction of present veterinary authority.

I now submit the views on tuberculosis presented in 1889 at a meeting of the Academy of Medicine in Paris by the most learned of this scientific body — views which I submitted to the Board of Agriculture in this state at the time. The debate arose on a report on tuberculosis, during which M. Lancereaux said: —

“I agree with the Commission of the Congress of Tuberculosis in a large part of the opinions it has given. Meanwhile, I believe it is too much controlled by experiment, and not by clinics. I believe that contagion plays a secondary part in the pathology of tuberculosis; that this disease is due to many causes, among which are the density of population and dwellings and living in confined air, both of which play the principal part. Among predisposing causes, which are of equally great importance in the spreading of consumption, alcoholism should be placed in the front rank. These considerations lead me to believe that various elements contribute to the development and extension of tuberculosis, and that contagion is not one of these elements. I should advise, therefore, a modification of the conclusion of the commission.

“Two factors causing the disease and controlling the creation of tuberculosis are: *predisposition in the organic structure and the introduction into that structure of a special parasitic agent.*

“The sputa, above all, when they are dry are a great cause of contagion. The same may be true with regard to the milk of an animal whose *udder is diseased*, and also in some cases the meat of an animal having tuberculosis.”

“There is one point,” said M. Villemin, “on which nearly all of us are agreed, and that is the danger from the expectoration of consumptives. We agree also on the proper prophylactic measures. For a long time experiment has shown the virulent activity of the sputa of persons afflicted with pulmonary tuberculosis. The discovery of

the bacilli of tuberculosis has only confirmed the opinion I then advanced.

"I agree with M. Lee in rejecting the idea that the air breathed is susceptible of contamination. He will agree with me in what I have said upon the immunity of physicians and servants in the rooms and hospitals of tuberculous patients is true. It follows that if we speak of atmospheric infection it is from the dust of expectorated matter, and not from the presence of tuberculous virus in the air.

"I come now," says M. Villemin, "to the transmission of tuberculosis by alimentary causes. This sort of contagion is less frequent than that caused by expectorated matter. Milk may be poisonous, it is true, when it is furnished by a cow affected with mammary tuberculosis. It may happen when a diseased cow in licking herself shall have impregnated her teats with her contagious discharge.

"Personally, I am inclined to accept the opinion of M. Lee with regard to pneumonia and bronchitis. But if the commission has considered inflammations of the bronchial tubes and lungs as favorable to the implanting of tuberculous bacilli in those organs they have based their opinions on the assertions of Koch alone, and *not on facts.*"

It is evident that M. Villemin does not agree with some of our veterinarians that a "little ulcer" in the lungs caused by a cold will furnish a bed for the bacilli. Nor do the French academicians agree with some of our own scientists.

The inhalation of the dust of dried tuberculous sputa and the introduction of the bacilli into the skin are two recognized means of imparting the disease. Beyond this we have not progressed far. Of twenty-five calves and twelve pigs which had been fed on the milk of diseased cows "about forty per cent. were found to be tuberculous. They were, most of them, in good health to all external appearance, and the post-mortem examination showed very few morbid changes;" "under the microscope the nodules possessed the usual appearance of nodules." The rabbits and guinea-pigs were inoculated, we learn from an observer.

While authorities differ with regard to the danger and the transmission of tuberculosis, and while the results of examinations are not very positive, we are warned against "the ravages of a most destruct-

ive malady among the human race, and against a dangerous and destructive infectious disease among our animals." It is said that consumption is largely on the increase throughout the country — in fact, throughout the world — on account of the prevalence of the bacilli. Let us see.

The population of England and Wales in 1881 was 25,974,439; in 1889, 29,015,613; the number of deaths from consumption in 1865 was 58,724; in 1889, 44,738, being a reduction of 13,986. This reduction ought to be considered.

In the United States the number of deaths by consumption in 1880 was 91,270 — 40,512 males, 50,758 females. The death-rates from consumption are in each 1,000,000 deaths: males, 242,-842, females, 302,046; for colored, males, 248,179, females, 326,-973; for those of Irish parentage, males, 509,507, females, 375,636; and for those of German parentage, males, 249,498, females, 254,-948. From these figures it would seem that the proportion of deaths from this cause in the colored race is but slightly greater than in the white, and that it is greatest of all in the Irish. The disease prevails most in New England and the Middle States, the Middle Atlantic Coast, the Ohio Valley, the western part of Kentucky, the central part of Tennessee, and on the coast of California. The proportion of deaths is greater in the interior of Michigan and Ohio than on the lake coast, and on the gulf coast of Texas than in the interior of that state. The regions showing the least proportion of deaths are in southern and western Georgia, central Alabama, Arkansas, Kansas, and the western territories. The Appalachian region also shows a low proportion as compared with the country lying on either side. It seems that the existence of the disease in the United States is controlled by locality and climate. As we have no returns prior to 1880, and the census of 1890 will not be completed under a year, we can make no comparisons for this country.

In Massachusetts, however, the record has been kept since 1880, and the comparisons are most interesting. The percentage of deaths by consumption of the total mortality was, in 1880, 15.56, and in 1889, 13.35, a marked diminution. The number of deaths from consumption registered in 1888 was 5,581, of which number 2,666 were of males and 2,915 females. The actual number of deaths from this cause was 147 less than that of 1888, 290 less than 1887,

and 316 less than that of 1886. The large number of deaths from consumption, numbering 5,581, nearly equal to the number of death from all other causes, demands an accurate and comparative investigation into such mortality. In the five western counties, Worcester, Berkshire, Franklin, Hampden, and Hampshire, the number of deaths in 1889 was 1,240; in Essex, Suffolk, Middlesex, and Norfolk, 3,600; in Barnstable, Bristol, Dukes, Nantucket, and Plymouth, 741. We have been told that while 10 to 25 per cent. of the milch cows in Eastern Massachusetts are tuberculous, the disease is much more rare in the western part of the state; and yet the proportion of consumption to the population is greater in the western counties than in the eastern. The amount of milk consumed in 1880 was valued at a little more than \$5,000,000; the amount consumed in 1889 was 72,528,628 gallons, valued at \$10,812,761. The disease does not increase in proportion to the milk consumed; on the contrary, the more milk, apparently the less consumption.

It seems that the bacilli of tuberculosis are a vegetable growth, fungus of most minute proportions, found not only in diseased but in apparently healthy tissues. They have been found, on post-mortem examinations, in healthy organs which have not been exposed to the influence of disease; and also in diseased organs, where they find a nidus for their accumulation and destruction. Dr. Nuttall of Johns Hopkins University informs me he has found 3,000,000,000 in consumptive's autopsy; and he also states that they collect in the lymphatic glands along the bronchi and lie dormant indefinitely. When tuberculous disease in any form is superinduced by a marshy locality, or bad food, or by scanty clothing, or an unhealthy climate or an enfeebled constitution, then the bacilli accumulate in great numbers, and destroy the vitality of the parts in the animal economy, as larger fungi destroy the plants and crops of the field. Undoubtedly the remedy consists in the removal of the cause, whether the cause is found in the influences of nature or in the habits of life. The use of a specific to arrest the progress of tuberculosis in its incipient stages promises great artificial aid to sanitary processes and pure air and good food, joined with Dr. Koch's lymph, may go far to remove the disease which has been and is so destructive to the generations of men.

In the Report of the Consulting Committee of Public Hygiene in

France I find some important statements. M. Gerlach and M. Toussaint succeeded in conveying tuberculosis unquestionably to animals which had been inoculated. Gerlach's experiments repeated by Johnes did not succeed. In the Congress of Copenhagen M. Cheauveau declared that he had been unsuccessful in inoculating tuberculosis. In the same congress M. Valin, a most careful and intelligent investigator, declared that he had failed to impart tuberculosis to twelve guinea-pigs which had been inoculated with the juice of a tuberculous guinea-pig. Every one of the twelve escaped. The experiments of M. Nocard seem to be equally unsuccessful, his trial having been on fifteen guinea-pigs, inoculated with juice from a tuberculous cow. All escaped. Multiplied researches in the opinion of the Board of Health rendered the problem of infection more difficult.

Now a word with regard to the danger of beef as an article of food. In the muscle of the animal the tuberculous germs, when they exist, are not abundant. If, indeed, you inject the virus directly into the blood it seems that it does not remain long in the muscles. The statement of M. Nocard proves this. He injected the tuberculous germ, not under the skin, nor into the peritoneum, nor into the digestive organs, but into the blood, and fifteen hours afterwards he could not succeed in imparting tuberculosis by using the juice of the muscle; while the juice of the viscera continued to furnish positive results. Considering this fact, M. Cheauveau, who had also discovered it, has declared that tuberculosis does not attack the muscles, and that "fillets of beef come always from superior animals, whose health can be considered excellent." In the present state of scientific investigation the use of beef may be considered perfectly safe and innocuous. Beef can be eaten with impunity, according to the most skilful of French scientists.

The question of milk is as yet undecided — so I learn from some of the most skilful and diligent of our scientific observers. The possibility of infection by bacilli through the alimentary canal is yet to be considered. In making this inquiry the power of the digestive juices in destroying infectious germs, as a germicide, should be taken into the account, there being no doubt that this power exists. Experiments carefully made show this to be the case. A quantity of solid or liquid food taken into the stomach is submitted to a process

of digestion which reduces the most obstinate substances to a uniform consistency, in order that they may pass into the circulation, and there is no evidence whatever that bacilli can resist its influence. The evidence thus far proves that they cannot. In this opinion Dr. Nuttall agrees with me entirely.

The observations of German scientists have supplied us with many interesting facts relating to this fatal disease. In Frankfort in 1889 sixteen per cent. of the cows were tuberculous, thirteen per cent. of the bulls, six per cent. of the oxen, and eight thousandths of one per cent. of the calves.

Stalloeck says: "Twenty per cent. of cattle fed with rubbish, i. e., the remains of sugar factories or of breweries, die of tuberculosis; one per cent. of cattle in the pastures."

Finkelnberg says: "In the west and south of Germany, where moorland exists to a large extent, tuberculosis is largely found and is fatal."

He also says, "Phthisis mortality is very small on the sea-coast. In those mountain regions where the natural draining of the water and its outflow are well-regulated, mortality is smaller than in other mountain regions."

Brush thinks the reason of so much tuberculosis in cows is that they are *weakened through milking*. They suffer from the weakness of lactation. Our observations in Virginia are that where the cows are forced by high feeding in their dairy work they have milary tuberculosis; the ordinarily-fed pasture cows never.

Rubner says: "The air which people infected with tuberculosis exhale has no bacilli; they are thrown up only by coughing up the solid infected matter."

The problem of tuberculosis is still open for exact scientific exploration. We know, however:—

1. That this fungoid growth is found in tuberculous cases of men and animals.
2. That the inoculation of bacilli is fatal to the lower order of animals.
3. That the inhalation of bacilli is fatal to the diseased human system; and to the healthy when introduced in sufficient quantity.
4. That the introduction of bacilli into the system by alimentation is not necessarily attended with fatal consequences.

5. That phthisis decreases in England and the United States.
6. That we do not find phthisis without bacilli; but we do find bacilli without phthisis.
7. That bacilli are sometimes found in apparently healthy bodies.
We do not know:—
1. How many generations of men and animals were affected by bacilli before the microscope revealed them.
2. What relations exist between microscopic fungi and the animal economy in which they are found, and between the fungi of the field and the crops they infest.
3. Whether or not the removal of the well-known causes of consumption would also remove bacilli.
4. That "tuberculosis is principally in those regions where cattle are raised," as is asserted by Brush.

When we remember the dependence of man on the animals of his farm, and the vast amounts invested in them, together with the consequences of extirpation and the difficulty of drawing the limits of diseased districts, we can realize the importance of scientific certainty and caution in arriving at conclusions on this subject to which the farmer is entitled, and which he has a right to expect from his scientific allies and friends.

Mr. Harold C. Ernst, who is employed at Mattapan in the work of investigating tuberculosis, and has been for three years, avails himself of the columns of the *Massachusetts Ploughman* to reply to my address on this subject, which I delivered before the Committee on Agriculture, and before the New England Agricultural Society in February last. I have no desire to obstruct or interfere with any scientific investigation into the causes of disease or the means of preserving health in men or animals; but I am anxious that both sides of a disputed question shall be heard, and that an investigation should be employed in ascertaining the truth, and not in substantiating a theory.

Dr. Ernst objects to my view of tuberculosis, and says:—

1. "No one who had even a slight knowledge of cryptogamic botany or bacteriology would confound the bacillus of tuberculosis with a fungoid growth."

In reply, let me say it is universally recognized that the bacillus of tuberculosis is a fungus, a vegetable growth, a cryptogam, and not an animal structure. It belongs to the lowest orders of fungi, in which are included molds and mildews, and on this account may be called a "fungoid growth." Bacillus is defined as "a microscopic rod-shaped vegetable organism." And fungus ranges from mushrooms to microscopic forms.

2. Dr. Ernst objects to my use of the term "lower order of animals," and says: "The scientific statement would be, that the inoculation of the bacilli may be fatal to animals susceptible to the disease, tuberculosis." I have no doubt of that; but I have found that the guinea-pig is a favorite subject for the inoculation; and I will leave the classification of the guinea-pig to Dr. Ernst, and will confine my own remark to those animals which are "susceptible," including all warm-blooded animals, all of which, according to Koch, are more or less susceptible.

3. Dr. Ernst accepts my view that "the introduction of bacilli into the system by alimentation is not necessarily attended with fatal consequences," and remarks that nobody ever claimed that it was.

In his argument before the committee of the Legislature he remarked, however: "The third method of infection is by eating the germ when contained in food, either meat or milk of animals diseased." And again he says: "Rarely-done roast beef or rare beef-steak from a tuberculous cow would not be safe food to eat." And he cites the statistics of the Jews to prove that "a portion of the tuberculosis of mankind is traceable to the use of tuberculous beef and milk." He adds that, "in reply to a circular letter addressed to over two thousand physicians, between twelve hundred and thirteen hundred answers were received, of which two disbelieved in the danger of using the milk of a tuberculous cow or *woman* as food; a large number said the matter was difficult to prove, while several stated that they had distinctly traced the infection of children to a diseased cow or a diseased wet-nurse." This is hardly science. We ought to know how many tuberculous wet-nurses are employed.

4. In reply to my statement that phthisis decreases in England and the United States, Dr. Ernst suggests that this is no "reason for even suggesting an opposition to further steps in the same direction" of investigation. I have never suggested such opposition;

on the contrary, I replied to a question of the committee that I thought the investigation ought to go on.

5. Dr. Ernst objects to my use of the term "phthisis" in connection with the bacilli in the lungs, and says: "The presence of the bacilli of tuberculosis in the lungs or other organs proves the presence of tuberculosis"—no more. But in his argument before the committee of the Legislature he says: "When this disease is located in the lungs it is commonly called consumption." And he also remarks that "the most frequent method of infection is by breathing into the lungs the dried dust from expectorations of men or animals afflicted with consumption."

Dr. Ernst agrees with me "that bacilli are sometimes found in apparently healthy bodies," but concludes that "the bodies are only apparently healthy," and that the bacilli will produce "the usual pathological changes" if we will only give them time enough. His colleague, Dr. Peters, thinks there are many recoveries in men and animals.

6. When we inquire "what relations exist between microscopic fungi and the animal economy in which they are found, and between the fungi of the field and the crops they infest," we are reminded by Dr. Ernst that "we are not dealing with fungi," but scientific authority says we are.

7. I asked in conclusion "whether the removal of the well-known causes of consumption would also remove bacilli." I am told that "there is but one cause of tuberculosis—the bacilli of that name." But every pathologist knows that phthisis and consumption and tuberculosis are synonymous terms, and all are generally used for the one dread disease, as Dr. Ernst himself uses them. When Koch administers his lymph with hopes of success he gives it to a patient who has a deposit of tubercle at the apex of the left lung, and has incipient consumption. When the "bacilli of tuberculosis" are paraded as a specific disease, one of the phenomena of an old and prevalent disease is placed in the rank of maladies which the immortal Louis investigated, and whose characteristics the modern microscope has only revealed. The causes of consumption to which bacilli seem to flock are, according to M. Lancereaux, whom Dr. Ernst considers no "authority whatever, competent to judge," "density of population and dwellings and living in confined air,"

and "alcoholism," and a bad climate and depressing influences as hereditary taint. And we have the authority of an associate of Dr. Ernst that "a little ulcer" in the lungs, caused by a cold, will furnish a bed for bacilli. When a consumptive patient abandons cold and damp climate for a warm and genial one he withdraws from the causes of consumption, and if the investigators will insist that he is beset by bacilli and has no consumption he simply invites the fungi to uncongenial influences, and to a climate in which the fungi will not flourish — as he hopes. If he recovers he is cured of consumption, by whatever other name veterinary science may have classified it.

Dr. Prudden in an exhaustive article on bacteria in *Harper's Monthly*, for April, 1891, speaks of "consumption or tuberculosis" as synonymous terms.

GEO. B. LORING.

COL. DANIEL NEEDHAM'S REPORT.

One year ago to-day at the annual meeting of the New England Agricultural Society, held in this hall, you were pleased by a unanimous vote to commend me as your representative to the official rulers of the neighboring Republic of Mexico.

Having made my visit among the people of Mexico, having studied the institutions of the country, and having enjoyed far more than the average opportunity of meeting and conversing with the President of that Republic, and governors of several of the states, and other official personages, it has seemed to me fit that at this first opportunity after my return I should make to you some report embracing the result of my observations and the many privileges afforded me by courtesy of officials and leading citizens of the Mexican Republic.

On Thursday, March 6, 1890, having received through the American Minister, Mr. Ryan, an invitation from President Diaz to meet him at the palace, and to take with me as many of my friends as would be agreeable, I visited the President at four o'clock in the afternoon, this being the hour fixed in the letter of invitation, and took with me sixty ladies and gentlemen, all residents of the United States of America. Minister Ryan volunteered his services to give me a formal introduction.

As President Diaz entered from a rear door in the great audience-chamber, and walked the entire length of the room to reach the assembled visitors, we had a most excellent opportunity to observe his manly features and his firm, elastic movement. A man of about sixty-two years, slightly gray, medium size, and dark complexion. His movement and gestures were very graceful, and his voice clear and musical. As he approached the head of the room, Minister Ryan stepped forward and introduced me as a citizen of the United States, interested in the trade relations of the two republics, and as the accredited representative of the New England Agricultural Society. More than a quarter of a century has passed since it was

my good fortune to represent the Vermont State Agricultural Society and the state of Vermont in a foreign country. But I never felt more proud of a constituency than I did of you, gentlemen of the New England Agricultural Society, when I spoke in your behalf in the palace of the President, in that ancient city of Mexico, now redeemed from the thralldom of kings, emperors, and revolutions, and standing as the capital of a sister republic, on the continent of our own America, reaching out for the things that make for peace, and the purifying of government, and the ennobling and building up of a true, enterprising, and intelligent manhood.

I will read to you from the only daily paper printed in the English language and published in the City of Mexico, *The Two Republics*, the account of my meeting President Diaz, and the addresses connected therewith.

Minister Ryan accompanied the party to the palace and presented Col. Daniel Needham to the President as the spokesman of the excursionists, who numbered more than sixty persons. Col. Needham delivered the following address in English:—

“Mr. President: I have the honor to present to you my friends and associates from the United States of America, who have come to this Republic and this grand and ancient city of Mexico with the view of securing a better understanding and a more satisfactory knowledge than can be obtained by histories and books of travel.

“To say that we are deeply impressed with the grandeur of this ancient city, with its colossal and artistically-wrought statuary, with its magnificent parks, with its broad, regularly-laid-out and cleanly streets, with its stately and dome-crowned cathedrals, its noble palace, and magnificent castle of Chapultepec, and its other public as well as private buildings, doing credit to the architectural skill and taste of your people, is but feebly expressing emotions which language is inadequate to communicate.

“We shall bear to homes in our native land recollections which will enable us to give to citizens and friends graphic accounts of well-conducted industries based upon advancing science, and to tell of an established interest by schools and seminaries of learning in universal education organized under the government and supported and appreciated by the people; as well as of the wonderful site of your ancient city, happily fashioned by nature, and so adorned

by the hand of skill in its construction and artistic arrangement.

"For myself, representative as I am of the New England Agricultural Society, an organization which represents the agricultural, commercial, and industrial wealth of the six most northerly and easterly of the United States of America, including as its great commercial centre the city of Boston, I bring you the good will of our people and an expression of the hope that the most intimate trade relations shall be firmly established, that it may forever appear that on the continent of America we have a common interest—the interest of the people—and that the one and only great Columbus, to whom you have erected a colossal and beautiful monument, belongs in part to us of the United States of America, as well as to you of the United States of Mexico.

"Mr. President, thanking you for the honor of this reception in behalf of the association which I represent, and of my associates here gathered together, and for myself, personally, and with earnest wishes for your continued health and the rapid growth of your prosperous republic, I bring this brief address to a close."

Senor P. de la Sota, one of the official interpreters of the party, translated the above address for the President.

Through the medium of Mr. E. C. Butler, of the American Legation, President Diaz made the following reply:—

"Colonel Needham, I am very much gratified to meet you and the party who accompany you. It is always a pleasure for me to meet distinguished sons and daughters of our sister republic. For a long period Mexico has emulated the United States, that oldest, greatest, most populous and progressive republic of the American continent. We have taken your country for our model honestly and earnestly. Though at times we have not lived up to your bright example in everything, our wish, our desire has been to emulate all that is great and noble in your great and noble country. I am always glad to meet, in this social, friendly way, representative and distinguished and cultured gentlemen and accomplished ladies from the United States, for I believe the best way of cultivating neighborly relations and good feeling is by this interchange of reciprocal intercourse, bringing us closer together, till we become better acquainted; and it is a pleasure to me that the study of Mexico and of her interests, her present and her future possibilities, lies in the

hands of such accomplished ladies and gentlemen as yourselves. The best form of education, I take it, is objective; to see things for ourselves, rather than only read them. Thus your visit to Mexico will, I trust, aid you better in understanding our country, in appreciating our situation, in studying our interests, than any other method of instruction. Let me say right here, please, what I have so often said before to your countrymen who have thus honored me in visiting me, that I hope for closer relations between your people and the people of my country. Mexico wants to see you come here; she welcomes you; she throws open the doors to every honorable enterprise born on your soil, every great movement conceived in your great country. We want you to come without faltering, to place your magnificent industrial resources, your capital, your genius, on our soil, become partners in our enterprises and sharers in our future prosperity.

"In closing allow me to say that it has been a positive pleasure to me to thus have met you and the party you represent. I hope your stay in Mexico will be agreeable and profitable; and that to such a degree that some, if not all, of you may find it to your interest to return here some time."

Having been thus welcomed and received, I was commended to the other officials of the government for such statistics as I might need to aid me in forming an opinion of the growth of the industries of the people and the progress of the various educational and charitable institutions.

The interest everywhere manifested by President Diaz in his people, and the responsive devotion manifested by the people in this great progressive leader of the Republic of Mexico, is constantly apparent. Every morning the President may be seen between ten and eleven o'clock, riding on horseback through the principal streets of the city, dressed in plain citizen's attire and without an attendant, bowing to the multitude on the right and left, as they move through the great thoroughfares or stop with uncovered heads to receive his salutations.

This fearless manifestation of confidence in the people has undoubtedly been a means of securing from the masses obedience to government and inspiring love and respect for the great ruler.

The City of Mexico is laid out in squares, like the city of Phila-

delphia, and in this regular form of skilful civil engineering was it found by Cortez, a hundred years before the Puritans landed on the shores of Massachusetts Bay. The city is built of white marble, and has a population of four hundred thousand. It is located in a plateau, seven thousand five hundred feet above the level of the ocean, fifteen hundred feet higher than the top of Mt. Washington, and yet in its plazas and outlying grounds grow the orange, lemon, and other semi-tropical fruit trees in great luxuriance and abundance.

Says the historian, "With the progress of Aztec culture, Mexico (the city) rapidly improved, and about 1450 the old mud and rush houses were replaced by solid stone structures, erected partly on piles amid the islets of Lake Tezcuco and grouped around the central enclosure of the great Teocalli." The city had reached its highest splendor on the arrival of the Spaniards in 1519, when it comprised from fifty to sixty thousand houses, with perhaps 500,000 inhabitants, and seemed to Cortez, in the language of Prescott, "like a thing of fairy creation rather than the work of mortal hands." It was at that time, as is well established, about twelve miles in circumference, everywhere intersected with canals, and connected with the mainland by six long and solidly-constructed causeways.

Whoever goes to Mexico and visits its capital city, expecting to find anything but grandeur and magnificence, combined with skilful engineering and architecture, and lavish expenditure of money, will be greatly disappointed. For without question it is certainly one of the most cleanly, imposing, and beautiful of American cities.

The area of the Republic of Mexico embraces twenty-seven states, one territory, and the Federal District, which includes the City of Mexico, the capital of the Republic. These several states comprise nearly eight hundred thousand square miles, and contain twelve millions of inhabitants. Among the leading cities of the several states might be mentioned Guadalajara, containing one hundred thousand; Guanajato, seventy thousand; Puebla, seventy thousand; and thirty other prosperous cities, ranging from five to thirty-five thousand people each.

All the European domestic animals are to be found in abundance, and in some of the Mexican states are to be found immense herds of oxen, numbering twenty and even thirty thousand, the property of a single owner. Maize, beans, coffee, tobacco, sugar, and in fact

every variety of agricultural product known to the civilized world, can be found growing in this wonderful country; and the native forests produce rose-wood, mahogany, oak, pine, lignum vitæ, and every other variety of wood used in cabinet and architectural manufacture.

The food and agricultural crops are estimated at two hundred millions of dollars annually, and for purposes of taxation the landed property is appraised at more than three hundred and fifty millions of dollars.

The precious metals constitute a large item in the exports, and these in 1882 amounted to eighteen millions of dollars. The currency is silver and copper, no gold being used in either government or mercantile transactions.

The people are large purchasers of English and American goods, and the fostering care of England has given her manufacturers great advantages in the Mexican markets. Thus far American manufacturers have had but limited opportunity to take advantage of the liberal purchases made by Mexican merchants in foreign lands; but there is no reason why a large portion of the goods now obtained in England should not be supplied by the United States. Minister Ryan is outspoken on this matter, and feels that our government has embarrassed rather than fostered our trade relations with the people of this neighboring republic.

Traversed by five great lines of railroad; its eastern shore washed by the Gulf of Mexico and its western by the Pacific Ocean; almost ready to open one of the most magnificent harbors of the world on its eastern coast, at Tampico, where the navies and merchantmen of the world will find ample protection against the most terrific Northerners, which have up to the present time been a terror to sailors frequenting the Mexican coast; with public schools established and maintained in all the states of the Republic; with a government prudent, enterprising, and popular, inviting and securing immense capital from England, the United States, Germany, and France, there can be no doubt but that the days of bloody revolution have made their last pages in its history, and the combined influences of advancing wealth, civilization, and native soil and climate will place this republic second only in its development to our own United States of America.

DANIEL NEEDHAM,
Commissioner.

Feb. 3rd, 1891.

HISTORICAL APPENDIX.

It has been thought well, in connection with the publication of the address of the Hon. Geo. B. Loring and the report of the Hon. Daniel Needham, commissioner of the society to the City of Mexico, to give a brief history of the New England Agricultural Society and its annual fairs, held in different localities, to the present time.

In January, 1864, a report and resolutions were adopted by the State Board of Agriculture of Massachusetts setting forth the importance of a New England Agricultural Association. A call was therefore issued to the various agricultural societies organized in the different states of New England to send delegates to a convention to be held in Worcester, Mass., on the second day of March, 1864, to organize such an institution. Every New England state responded and there were present at the meeting thus called many of the most active and intelligent promoters of the art of agriculture. The meeting was called to order by the Hon. Geo. B. Loring of Salem, Mass., and the following named gentlemen were elected the first board of officers: —

President. — Geo. B. Loring, Salem, Mass.

Vice-presidents. — Ezekiel Holmes, Winthrop, Me.; Frederick Smyth, Manchester, N. H.; Daniel Kimball, Rutland, Vt.; T. S. Gold, West Cornwall, Conn.; Amasa Sprague, Cranston, R. I.; Wm. H. Prince, Northampton, Mass.

Secretaries. — Charles L. Flint, Boston, Mass.; Henry Clark, Poultney, Vt.

Treasurer. — Thomas Sanders, Brookfield, Vt.

MAINE.

Trustees. — Samuel F. Perley, Naples; John F. Anderson, So. Windham; Calvin Chamberlain, Foxcroft; Dr. N. T. True, Bethel; Wm. D. Dana, North Perry.

NEW HAMPSHIRE.

Jos. B. Walker, Concord; Moses Humphrey, Concord; S. W.

Buffum, Winchester; N. Hubbard, Tamworth; Nicholas V. Whitehouse, Rochester.

VERMONT.

Daniel Needham, Queechy; George Campbell, West Westminster; Edwin Hammond, Middlebury; Ebenezer Bridge, Pomfret; A. M. Clark, St. Albans.

MASSACHUSETTS.

C. O. Perkins, Becket; Paoli Lathrop, South Hadley Falls; Leverett Saltonstall, Newton; S. B. Phinney, Barnstable; A. W. Dodge, Hamilton.

RHODE ISLAND.

E. D. Pearce, Providence; David Pike, River Point; A. B. Chadsey, Wickford; J. De Wolf Perry, Bristol; Thomas B. Buffum, Newport.

CONNECTICUT.

J. G. Webb, New Haven; Benj. Sumner, Woodstock; R. Battell, Norfolk; P. M. Auger, Middletown; C. M. Pond, Hartford.

At a meeting of the trustees, subsequently held, it was voted to hold the first fair at Springfield, Mass. In accordance with this decision, the first fair was held at Springfield, Mass., September 6th, 7th, 8th, and 9th, 1864. It was attended by an immense concourse of people, and the exhibition was pronounced by the press as far superior to anything of the kind ever held previously in the country.

Governor John A. Andrew delivered the opening address, his first words being, "I hail this becoming and beneficent gathering of the yeomanry of New England." The address occupied an hour, and was published by the press, not only of New England, but of all the Middle and Western States.

Prof. Agassiz, Dr. Loring, and many other gentlemen, took part in the discussions of the meeting. The weather throughout the fair was clear and beautiful.

The second fair of the society was held at Concord, N. H., September, 1865. Governor Frederick Smyth delivered the address. The weather was cloudless, and the immense crowds that gathered at the exhibition more than met the anticipation of the resident popu-

ation, who had made great preparation for their accommodation.

The third fair was held at Brattleboro', Vermont, September, 1866. Ex-Governor John A. Andrew, of Massachusetts, delivered the address. The weather was beautiful and clear during the four days of the exhibition.

The fourth fair was held at Cranston, R. I., September, 1867. Addresses were delivered by Ex-Governor Andrew, Hon. Salmon P. Chase, Major-General Howard, General A. G. Burnside, and many other gentlemen. The weather was perfect during the four days of the exhibition.

The fifth exhibition was held at New Haven, Conn., September, 1868. At this exhibition the society had the first discomfort from bad weather, the third day of the fair being a heavy rain-storm. Governor English delivered the address.

The sixth exhibition was at Portland, Maine, September, 1869. Addresses by Senator Hamlin, Major Putnam, of Portland, Colonel George F. Shepley, Governor Padelford, Hon. Sidney H. Perham, Ex-Governor Coburn, Dr. Loring, and a large number of other gentlemen. On the evening of the second day there was a terrific storm, which did much damage to the tents and fences. But at an early hour of the third day repairs were fully made, and the weather of the four days was otherwise delightful.

The seventh exhibition was at Manchester, N. H., September, 1870. The address was given by Senator Patterson. The four days of the fair were pleasant.

The eighth exhibition was given at Lowell, Mass., September, 1871. The four days were pleasant. Governor Claflin, Ex-Governor Boutwell, Governor Perham, of Maine, and many other gentlemen addressed the people.

The ninth exhibition was at Lowell, September, 1872. Four days of beautiful weather. At this exhibition on the third day it was computed that no less than sixty thousand people were in attendance.

The tenth exhibition was held at Mystic Park, Medford, September, 1873. Address by Rev. W. H. H. Murray. The third day was rainy, and the fair was continued into Saturday on that account. All the other days of the fair were pleasant.

The eleventh exhibition was held at Narragansett Park, Provi-

dence, September, 1874. Addresses by Governor Howard and Mayor Doyle, of Providence. The weather of the four days was perfect.

The twelfth exhibition was at Manchester, N. H., September, 1875. Address by Henry Ward Beecher. The afternoon of the third day was rainy; all the other days were pleasant, and the fair was continued over Saturday.

The thirteenth exhibition was in connection with the Centennial at Philadelphia, and known as New England at the Centennial, September, 1876. Addresses were given by Colonel Daniel Needham and Hon. S. D. Harris, and poems were read by Mrs. Helen Barron Bostwick and Mrs. Ophelia Forman. The attendance at the Massachusetts Building, where the exercises were held, was very large, and the entire four days given to their meetings were pleasant.

The fourteenth exhibition was at Portland, Maine, September, 1877. The weather of the four days was cloudless. Addresses were made by Governor Connor, General J. Marshall Brown, and other gentlemen.

The fifteenth exhibition was given at Worcester, Mass., September, 1878. Addresses by Governor Rice and Dr. George B. Loring, Mayor C. B. Pratt, Governor Prescott, Hon. W. W. Rice, and Col. Daniel Needham. One of the four days of the fair was rainy.

The sixteenth exhibition was given at Worcester, September, 1879. Addresses by Governor Long, Dr. Loring, Governor Head, Attorney-General Devens, Ex-Governor Boutwell, and Hon. A. W. Beard. The four days of the fair were pleasant.

The seventeenth exhibition was held at Worcester in September, 1880. Gen. Wm. T. Sherman was present, and addressed the people. The school children of Worcester were massed on the main street in front of the Court House, and as the great procession passed it halted while the children sang "Marching through Georgia." The bands and the multitude joined in the chorus. On this occasion there was a military display, in which all the companies of Worcester took part.

The eighteenth exhibition was held at Worcester in September, 1881. The weather was pleasant with the exception of the third day, which constantly threatened rain, and undoubtedly affected the attendance at the fair.

The nineteenth exhibition was at Worcester, September, 1882. The weather was fair; and among the many distinguished guests was Vice-President Wheeler, who delivered a most acceptable address to the people.

The twentieth exhibition was at Manchester, N. H., September, 1883. The weather was fair during the entire four days.

The twenty-first exhibition was at Manchester, N. H., September, 1884. The weather was fair during the entire exhibition.

The twenty-second was at Bangor, Maine, September, 1885. A large number of the leading men of Maine were present and addressed the people from the grand stand. Four days of perfectly fair weather. Hon. James G. Blaine was present.

The twenty-third exhibition was held at Bangor, Maine, September, 1886. On the second and third days, in the morning, there was threatened rain. The afternoon of the third day there was a successful balloon ascension, in addition to addresses by leading public men who honored the occasion.

The twenty-fourth exhibition was held at Worcester, Mass., September, 1887. With the exception of the second day, which was lowery, the weather was beautiful.

The twenty-fifth exhibition was held at Worcester, Mass., September, 1888. The weather was fine during the fair.

The twenty-sixth exhibition was held at Worcester, Mass., September, 1889. The weather was fair. Address by Hon. Daniel Needham.

The twenty-seventh exhibition was held at Worcester, Mass., September, 1890. The mornings of the second and third days threatened rain and undoubtedly affected the general attendance.

At the first annual meeting, in 1864, Geo. B. Loring was elected president, and has continued in office to the present time.

Charles L. Flint and Henry Clark were elected secretaries at the first annual meeting, but resigned after holding the first fair at Springfield in 1864. Daniel Needham was then elected secretary, and has held the office continually up to the present time, 1891.

Thomas Sanders was elected the first treasurer and continued in office one year; he was succeeded by Isaac K. Gage, who continued treasurer five consecutive years, and was followed by the election of Geo. W. Riddle, who has held the office to the present time, 1891.

Summary of the receipts of the New England fairs from twenty exhibitions from the seventh to the twenty-seventh, inclusive, taken from the books of Geo. W. Riddle, treasurer :

	Receipts.	Profits.	Loss.
7th Annual Fair held at Manchester, 1870.....	\$27,560.00	\$2554.07	.....
8th " " " " Lowell, 1871.....	25,743.00	5600.00	.....
9th " " " " Lowell, 1872.....	31,250.00	6061.44	.....
10th " " " " Mystic Park, 1873.....	24,014.00	.....	\$2,915.20
11th " " " " Providence, R. I., 1874.....	22,365.00	973.74	.....
12th " " " " Manchester, 1875.....	20,360.00	1200.00	.....
13th " " " " Centennial, Phil., 1876.....	.....	.....	.....
14th " " " " Portland, Me., 1877.....	20,000.00	.....	.....
15th " " " " Worcester, 1878.....	19,556.59	2653.27	.....
16th " " " " Worcester, 1879.....	21,701.99	4476.54	.....
17th " " " " Worcester, 1880.....	23,090.00	3771.84	.....
18th " " " " Worcester, 1881.....	20,647.89	1640.97	.....
19th " " " " Worcester, 1882.....	21,954.00	3069.93	.....
20th " " " " Manchester, 1883.....	15,887.58	896.67	.....
21st " " " " Manchester, 1884.....	12,864.73	.....	\$66.85
22d " " " " Bangor, 1885.....	27,178.79	2223.36	.....
23d " " " " Bangor, 1886.....	23,751.00	.....	.....
24th " " " " Worcester, 1887.....	22,076.00	.....	.....
25th " " " " Worcester, 1888.....	23,667.52	2141.43	.....
26th " " " " Worcester, 1889.....	24,271.58	2231.65	.....
27th " " " " Worcester, 1890.....	21,725.62	2100.00	.....
TOTALS	\$449,655.38	\$41,594.91	\$3,602.05

RECAPITULATION.

Fifteen fairs, profit	\$41,594.91
Three fairs, no profit	
Two fairs, loss	\$3,602.05

NOTE. — No financial record of the six exhibitions held prior to the year 1870 is at hand.

The eighth and ninth exhibitions, held at Lowell in 1871 and 1872, the admission fee was only 35 cents. At all other fairs the admission has been 50 cents.





Loring, George B.

ADDRESS

DELIVERED BEFORE THE

Hampshire, Franklin and Hampden

AGRICULTURAL SOCIETY,

AT NORTHAMPTON, OCT. 14, 1858,

BY

DR. GEORGE B. LORING.

NORTHAMPTON:
PRINTED BY METCALF & COMPANY.
1858.



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ADDRESS

DELIVERED BEFORE THE

Hampshire, Franklin and Hampden

AGRICULTURAL SOCIETY,

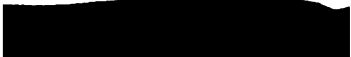
AT NORTHAMPTON, OCT. 14, 1858,

BY

DR. GEORGE B. LORING.



NORTHAMPTON:
PRINTED BY METCALF & COMPANY.
1858.



1859, Feb. 14.

E. J. G.

Rev. F. W. Holland

of East Cambridge

ADDRESS

DELIVERED BEFORE THE

HAMPSHIRE, FRANKLIN AND HAMPDEN AGRICULTURAL SOCIETY,

At Northampton, October 14, 1858,

BY DR. GEORGE B. LORING, OF SALEM.

MR. PRESIDENT, AND GENTLEMEN OF THE SOCIETY:—

THE great miracle of the revolving seasons has been performed since last you met. Nature has had her long repose, has started with renewed vigor to her annual toil, has faithfully fulfilled her mysterious duties, and brings the fruits of her labors to the feet of man, as she again prepares herself for her needed rest.

You are met here as the reverent witnesses of her power, and as the grateful recipients of her bounties. Day after day you have looked up to her with "humble confidence," and can tell how ready she is to "reward all who diligently seek" her. You, who till the soil, are most truly her children, her first born, to whom the charities of her ample bosom are always open. If you listen, you will hear coming along the ground, the soft whisperings which tell of her magic processes. If you look abroad, you will see in the heavens above and in the earth beneath, the thronging manifestations of that Omnipotence, which reveals itself in every blade of grass and in the stars which stud the sky. It is you, farmers, who live in the very homestead of nature, and to whom nature's God has given, by the decree which made us mortal, that occupation whose influences, by divine compensation, cherish the virtues which may relieve man from the fruits of his first disobedience. The whole world

respects your calling, for all men feel that it was given directly from the hand of God. And how far soever man may advance in the application of science and skill to the great work, all his arts can never succeed in concealing the supremacy of nature over all he does, nor remove him far away from those hidden and irrevocable laws to which the farmer must of all men be obedient. No wonder, then, that men respect your occupation, some with intelligent admiration, some with blind reverence. For all men feel instinctively the divinity of its origin, and all men are obliged to recognize their dependence upon its existence. It is adored because it has never been fully comprehended. We know the laws of mechanical forces, we direct the operations of mills and engines, we construct society and states, we control the earth and the waters for our purposes, we collect armies and navies, and we understand all the complicated fabric which man builds upon the surface of the earth for his comfort, protection, and elevation, for it is all human. But no man has yet revealed the mysteries which lie all around the farmer, no man has yet told the whole story of agriculture, no man has taught us how the grass "groweth for cattle," nor how "the valleys are covered over with corn." And as the farmer goes on with his work, and while mankind are fed by his industry, his alliance with nature, and the eternal foundations of his occupation, will always give him a place in society, which all men will ponder upon, and all men must respect. You may plant and build, you may sow and reap, you may reduce the great divine art to the merest drudgery, and yet there still sits enthroned the genius of agriculture, high and supernal, breathing over all the toil devoted to its service, an atmosphere in whose fresh influences all men find a strange delight.

In a thousand ways we all give expression to this feeling—this admiration of the mysterious operations of the soil—this love for and confidence in agriculture—this silent awe at the great miracle going on around us. As the traveler

passes along the dusty highways of summer, does his eye dwell upon the smooth walls and iron fences which enclose that luxuriant garden, or does it look over and above all these monuments of man's taste and skill, to that miracle of beauty, the blossoming tree beyond? As the gardner enters the town laden with the products of the soil, how does the busy multitude stop to gaze in silent admiration upon that mysterious picture which a plant always presents! For as I said in the beginning, the great miracle of the revolving seasons has still been going on—a miracle which every social and civil circumstance, your education and your descent, your inborn natures and all the accidents of life, prepare your minds, as intelligent, thoughtful, and jndustrious New England farmers, to recognize.

You will infer from what I say, gentlemen, that I have a high idea of the capabilities of New England farming. I have. I conceive that no climate offers more substantial promises. From the banks of the Aroostook to the mouth of the Connecticut, neither polar frosts nor tropic suns ever blight. The soil never fails to give a rich reward to patient industry. The fruits of the earth are compact with the richest principles of nourishment for man and beast. A hardy and industrious people receive new strength to their virtues from the obstacles which they are constantly called upon to overcome. Society has grown up on a foundation of the staunchest human qualities. Education is unceasing in its work of elevation. The institutions of religion stand like guardian angels around our homes. And freedom, intelligence, activity, and universal social elevation combine to give character to a farming community, whose chiefest prerogative is that every farmer tills his own soil. I have a right therefore to have a high idea of the capabilities of New England farming, and I feel that if anything I can say will bring our farmers to a true understanding of the privileges and opportunities, and to a just sense of what it is to be a New England farmer, I shall do more towards teaching them to conduct their agriculture aright, than all the essays

on cultivation which may do as much to bewilder as to enlighten. For it is he who respects his occupation, and comprehends its just importance, who rouses all his faculties to ingenious, constant, devoted labor, and advances over all obstacles on to high success. The whole world is tributary to him, and the wisdom of man hastens to lay its offerings at his feet.

Farming is by far the most important occupation in New England. In 1850 the whole number of farmers in the six states was 167,651. The number of acres improved was eleven millions, one hundred and fifty thousand, five hundred and fifty-four. The value of the farms, was three hundred and eighty-two millions, three hundred and forty-eight thousand, five hundred and forty-three dollars. In Massachusetts alone the number of farms was thirty-four thousand, and fifty-nine. The number of acres improved was two millions, one hundred and thirty-three thousand, four hundred and thirty-six. The capital invested in agriculture was one hundred and nine millions, seventy-six thousand, three hundred and forty-nine dollars. In order to give you a comparative view of agriculture and manufactures, I would state that in the same year, in New England, the capital invested in manufactures was one hundred and fifty-eight millions, one hundred and eighteen thousand, one hundred and nine dollars, much less than half the value of the farms; and in Massachusetts it was eighty-three millions, three hundred and fifty-seven thousand, six hundred and forty-two dollars, about two thirds of the value of the farms in our own state.

You will see by these figures that while other occupations have built their monuments almost to the skies, while cities have started into life at the "stamp of their feet," while all that is gorgeous and grand and imposing has been wrapt around them to make their greatness known to man, there is an unobtrusive branch of industry, which outweighs them all, both in material wealth, and in those silent influences which are felt every where, and which control mankind with calm and noiseless power.

This is the real and comparative value of New England farming. It may not have arrived at any great degree of perfection. It may be deficient in method and in the application of what are called scientific principles; it may have deteriorated for the last few years, as we are told by those who profess to know, but this is its true position upon which its prospects depend. A distinguished gentleman has informed us that from 1840 to 1850 the process of agriculture was "altogether a retrograde movement, and the lessening crop per acre, year by year, was so serious as to threaten the existence of the interest." And he goes on with figures to prove it. Now all this may be true. It is possible that the loss of land per year by exhausting culture in Massachusetts alone amounted to one million five hundred and eighty-one thousand, five hundred and seventy-two dollars, and that "the waste is equal to two and nine-tenths of one per cent, on the value of the farms." But this does not go to disprove the deep and vital interest our people feel in agriculture, nor to diminish its importance and influence. It may be true as has been said elsewhere, that "New England does not produce the bread she eats, nor the raw materials of the fabric she wears;" and that a multitude of her agricultural towns are undergoing more or less rapidly, a process of depopulation. But the inference drawn from these statements, that New England agriculture is dying of a slow and consuming disease, is by no means true, neither is it true that farming here is on the decline, because the reality does not agree with the vague and rosy ideal which fills the mind of sentimentalists and dreamers. The joys and pleasures and attractions of farming life are not measured by the amount of pinks and pansies which grow under the windows, nor by the amount of physical beauty enclosed within the domestic walls. The sorrows and hardships and depressing influences of agriculture do not arise from the necessity for constant labor which attends it. I will never allow that the farming population of New England is becoming "animalized" by devotion to

its calling. Neither will I believe that the deep and innate sense of the true nature of this calling, that sentiment, unexpressed, perhaps inexpressable, that character making the farmer distinct, peculiar, individual, that instinct quickened by the business of the farm, by broad fields and the overarching sky, is lost here among our New England yeomanry. I cannot believe that "the farmer's life is no better than a street sweeper, if it rise no higher than the farmer's work:" for the farmer's work has a superiority in all its relations, a connection with the condition of mankind, a high estate in the scale of society, which no drudgery can depress. And I do not believe that the farmer is compelled to "apprehend that his farm has higher uses for him than those of feeding his person and his purse," in order to fulfil all his duties, and to keep himself up to the standard appointed to him in his social and civil relations. Whoever expects the business of farming in its details, in buying and selling, in planting, plowing, reaping, digging, to be different from actual business in other branches, needs only a short life on a farm in order to discover his error. And whoever expects to drive the agricultural population of New England from the high position belonging to them, by reflecting upon their daily toil, cannot comprehend the true genius of their occupation, nor the spirit of calm content, and substantial virtue which belongs to a farming community. No degradation of labor has yet befallen us. And any analogy drawn between the rural population of New England, either in reference to their present condition or to their future possibilities, with the half-starved and squalid classes abroad, whom want for generations has degraded, has yet to learn the first lesson in the study of New England character.

But when I hear it said moreover that in the farming homes of New England there is but one room in which the family live, spend their evenings, "and cook everything for themselves and their hogs," when I hear it said that the sons of our farmers flee from their homes because they are

“unloved and unlovable things,” when I hear it said that our rural mothers are “mere bent and clumsy drudges,” when I hear it said that our farmers “are not men among men and women,” that “socially, they become dead for years before they die,” I am impatient to unfold the true picture of New England farming life for the instruction and admiration of those who know by daily experience its comforts and pleasures, and of those who carry in their memories the cheerful associations of their childhood’s home. For I know that in the rural population of New England, there is always in every household a chosen spot adorned with appropriate taste. A few books upon the table, the mother’s handiwork done in her girlhood, when she was a farmer’s daughter, and before she had assumed the cares of a farmer’s wife, hanging on the wall, the cherished pictures of those who have gone forth into active life, the substantial furniture which has known more than one generation, the musical instrument to whose keys the chords of the village psalmody are all familiar—these and more make up the interior of our rural homes. Go with me, you who believe in the sketch of farming life which I have quoted, to the village church, and, having learned there the appearance of the assembled worshippers, return with them to the domestic circles and know of what the families of our farmers are composed. You will find there as in no other country, ample information upon the current topics of the day, an intelligent understanding of those doctrines which divide men into sects and parties, decorum, neatness, and almost universally a profusion of whatever is necessary for physical comfort, and existence. In these homes a hardy race of sons tells of careful and hardy mothers. Witness the welcome extended to neighbors and friends, and judge whether the farmer there is unsocial. I can take you to a farmer’s home on the very confines of New England civilization, where you may learn the best methods of practical agriculture, the choicest crops for the latitude, the last expedient of political aspirants, the latest

pulpit controversy, and if your appetite is palled by a surfeit of city luxuries, you may restore its tone at the simple and well-filled board. I have been surprised to see how the New England farmer carries with him even to the very verge of the wilderness, that intelligence, and thrift, and skill, which in other countries cluster about cities and villages, and which mark him above all farmers on earth, as a free, enlightened, responsible citizen.

If New England agriculture is on the decline, as we are told, it is not because our farming population is ignorant, and unsocial, and "angular," and ungainly, and wanting in physical strength and energy. It is just the reverse. Our farming interests have been neglected because the intelligence, and activity, and ambition and force, and the goods looks moreover, of our people, have led them into enterprises of every description, which promise liberal and easy rewards. Our people are what is usually termed "smart"—the boys and girls are full of energy and the parents behold with fond pride their children launching out into the busy world, peopling counting rooms, pulpits, school houses, factories, with quick-witted and busy occupants. I remember in early life, when I had just begun to look about me for occupation, when I had finished, as it is called, the education which my good father gave me, I started from my native village with my books and the horse and carriage with which I had been provided, to offer my services as a physician, to the sick and suffering in a town not far from Boston. It was a beautiful summer afternoon, and as I went on pondering upon my prospects, I overtook a boy barefooted, his bundle on his back, and his shoes in his hand, trudging on also in search of fortune. We were more than twenty miles from the great city, and I asked him to share my carriage with me on the journey. He said he had walked from the Penobscot river, was the oldest son of a farmer who had ten children, had heard that Franklin was a printer, and had left the old farm to enter upon that path to greatness, which he found had been traveled so

successfully by that great patriot and philosopher. As we passed through the villages on the road, he informed me of their population and their industrial interests. He had read but few books, and these he knew almost by heart. His courage was great, and the only tear he had shed on all that long and weary journey, was that which he dropped as he turned upon the last "commanding hill" to look at his home with all its fond associations. I took him to Boston and introduced him to a printing office. He went his way and I went mine; and I have often thought that I might be at this day admiring the high position of this very boy, whose name I have long since forgotten. Do you suppose this boy left his home because it was distasteful to him, or the farm because he disliked it? Not so. But you may learn from this example why farming has periods of decline in New England. It is because the young men born on them are compelled to seek a living elsewhere, both by the limited pecuniary means of their fathers, and by their own ambition.

You must remember that few New England farmers are rich. The capital invested in their occupation is spread over a very large surface. They own their farms, and unlike the farming population of other countries, where serfs and peasants are rooted in the soil, and are transmitted as a part of landed possessions, they have the world open before them from which to choose with the capacity and prospects of freemen. The greatest crop raised hitherto on these farms, is a host of active, thriving, busy men, engaged in the professions, toiling in business, building up our cities and extending our commerce. And it is because the active capital of our community has been poured into other channels, that agriculture has been left to furnish that important product, which while it sustains her associates, exhausts herself. Perhaps our fields have been exhausted, perhaps the average of our crops has decreased, perhaps our agriculture is on the decline—but when we consider what our farms have done for us, what a robust and busy host they have sent abroad, to create home markets for the


consumption of our products, we shall learn how by the law of compensation, agriculture will one day, if it has not done so already, reap the harvest she has prepared by her first sowing of bone and muscle, intelligence and activity, in the busy walks of life.

Yes, gentlemen, the intelligence, activity, and force of our people has led them away from agriculture, until of necessity the wave is beginning to return. New England farming is just coming out of a transition state. It was once almost the only occupation of our people, and so continued, until capital and industry were averted from it to manufactures and commerce, by whose operations we have been enriched and prepared for a new farming career, now I think just commencing. The fact that we do not produce enough to support our own population, simply proves that we have been able to employ ourselves more profitably than in competing with the cheap and easy agriculture of the newer states. And it is only when our population is forced back upon ourselves, and capital has reached its limits in other branches of trade, that our present system of common farming will cease, and high farming begin.

This era has already commenced. The markets which lie at our very doors, and furnish as safe and ready a sale for our products as can be found on earth, have developed all around our large cities, a system of agriculture, which is not easily surpassed, in economy and appropriateness. The last quarter of a century has proved that a judicious investment in systematic and careful husbandry, with all the light which the science of agriculture can bestow, has received a reasonable and often highly liberal reward. Farming under such circumstances has proved itself to be profitable, and is in consequence becoming more and more attractive. An increasing variety in the demands of our markets, is constantly appealing to the ingenuity of our population. And that energy, which in the early history of our country found its only opportunity in tilling the

earth, producing a simple and prudent system of agriculture among us, has after long wandering in other spheres returned once more to the land.

Our fathers were good farmers. I can go with you to an early settled section of New England and admire the monuments of industry and skill which they left behind them. They had a remarkable genius for the selection of land. It was the source of their entire subsistence. In the clearing, the savage startled them at their plows. When the battles of freedom were to be fought, it was the furrows in their fields which sent forth their crop of armed men; it was farms which were deserted, not factories and mills. The chief trade of the times consisted in the interchange of farm products, or in their exchange for a scanty supply of imported articles of luxury and necessity. I say they were good farmers, for they farmed in accordance with the requirements of the times. They built heavy stone walls, they cleared large fields, they understood all the emergencies which might arise, they knew where to plant the dollar, in order that it might "return to them after many days." The houses and barns which they left behind them, and which literally grew up out of the soil, indicate thrift, prudence, and great skill in overcoming their many obstacles which lay all around them. Let no man suppose that this race of men is extinct. There is a space lying between the elaborate cultivation of our thickly peopled districts, and the still smoking forests of our new settlements, in which agriculture is enjoying the profoundest repose. But beyond this space, in the outer circle of civilization, the primitive and successful career of our farming ancestors is at this day acted over again, with this difference, that now there are thousands of outlets for the surplus population—then there were none. Our New England corn fields are steadily encroaching upon the forests, and as they grow there in the shadows of those primeval woods, they yield a reward for the hard labor and small capital invested, which is sure to result in competency and independence. On this territory




there is a farming population, constantly increasing the number of acres brought under cultivation, and preparing the way for all the refinements of life, who compose one of the most active agents in developing our agriculture, and whose new fields supply the places of those that are neglected, useless and exhausted. It is this love of the virgin soil among us, which accounts for the increased acres of cultivation and the diminished products. And it is the occupation of this soil which constitutes a prominent feature in the great agricultural work going on around us. It has its merits. True it is not the farming of a Hudson or a Mechie. But it is the conversion of hard and unceasing labor into a position of comfort and happiness, it is the work which bone and muscle can do towards the extension of education and refinement. It is a part of New England farming that is almost entirely overlooked, but which is that original and primitive agriculture begun by our fathers on the "spot where first they trod," brought by them to the perfection of rude productiveness, and carried in the vanguard of our advancing civilizations, "the ark of the covenant" for an enterprising and progressive people.

It is not therefore the high farming in the neighborhood of cities, nor the simple and rude agriculture of the frontier which requires attention; but that middle ground which the skill of the former has not reached and from which the vigor of the latter has passed away. The question is how to make the farming of all this great region profitable, how to restore it to its former prosperous condition, how to convert it into what it is designed to be, a flourishing agricultural district. It is idle to tell us that its prosperity has declined on account of bad cultivation. It is not meeting the matter at all to tell us that it is dying for the want of manure. Why is it not well cultivated? Why are not earth and sea and sky ransacked for manures by a busy crowd of farmers? Tell me not that the patient is dying "for want of breath." But tell me why he cannot breathe, and then we can apply the remedy. Let the farmers of

New England but understand the method by which their farms can be made profitable, and the very air would be redolent with the odors of accumulating fertilizers. This is the sum and substance of the whole matter. Every farmer knows that he has only to ask, and he will receive from the bounteous earth herself an abundant supply of those materials which strengthen and enrich his soil. Let him but learn that it will pay to ask, and the whole difficulty will vanish at once. Let those who have relied upon the bounties of nature which never fail, and who have learned to rely upon an indolent appeal to the soil for their animal subsistence; remember that in any other occupation than farming, starvation would crown such sleepy efforts, and they may then understand what would be the rewards of activity, industry and intelligent perseverance. No man ever knew a busy farmer to grow poor. I never saw a skillful farmer who did not grow rich. And the secret of this skill is in understanding the capacity of the farm. Do you own five acres or five hundred—learn first what those acres are capable of doing for you, and you have opened the “golden gate” beyond which lie all the regions of wealth. The earth is a most willing servant, and be the crop a wagon load of esculents for the neighboring market, or the food of a thousand head of cattle, he that calls for this crop with a true understanding of how he is to call for it, and where he is to find it, is sure to receive his reward. Learn then first of all the capacity of your farm, and have faith to believe that it will never disappoint your reasonable expectations. Let this knowledge be diffused throughout New England, and the success of her farming is established at once. Learn this and the science of agriculture becomes at once your ally, pointing to the whole inexhaustible supply of fertilizers lying at your feet. Comprehend this, and you will find the farm which occupies a township, as easily managed as that ten acre lot which your industrious neighbor has filled with choicest products. For no farm was ever too large. The broader the area, the larger the opportunity—always considering that he who depastures a wide expanse of land

remote from his home, is as truly engaged in agriculture, as he who condenses all his operations within the limits of his homestead.

This adaption of New England farming to every variety and size of farm-steading, constitutes its most important characteristic. There is nothing either in our tenure of property, or in the demands of our markets, or in our modes of cultivation which prevents the small land-holder from receiving his due proportion of the advantages of agriculture. It is impossible here for large estates to draw away the sustenance from small ones. You will hardly find this happy condition of equality anywhere else. Go to the west, and the prosperity of farming consists in holding large possessions which will furnish liberal contributions to the great staples of that region. Thousands of bushels of wheat, and herds of fat cattle, corn fields extending as far as the eye can reach, and pastures bounded only by the horizon, constitute the foundation of a western farmer's prosperity. Go to the south, and it is the owners of whole savannahs, who absorb all the agricultural resources of that section of the country, and produce by a necessary and inevitable monopoly, those commodities which enter into the commerce of the world. In these sections of our own country the small farmer has hardly a resting place for the sole of his foot. And if you will go with me to England, you will find that one of the most difficult problems, now occupying the minds of the statesmen and philanthropists of that country, is the best method of advancing the prosperity of the moderate cultivators of the soil. After the most dilligent and anxious investigation there, it has become a conviction in the minds of those who are interested in the matter, that only by combined capital in joint-stock farming companies, can the great mass of small farmers ever hope to compete with the holders of large estates. As they now stand, there seems to be no other mode of relief for those hard-working but unfortunate cultivators, whose position and capital are such as to prevent their competing



with the concentration of power and wealth all around them. They are but tenants at the mercy of landlords, who have nothing to offer for the misery but their sympathies, and the stern decree which drives them from their estates, and of whom it has been said that "they would be sorry to see the country parcelled out into a few large corn-factories, and grieve to see the stout, honest tenants of many generations driven over the water. But they look at the fields dirty with weeds, and ill-cultivated, at the farm-houses and buildings multiplied into hovels and ruins, at the arrears, numerous if not large, and contrast these things unfavorably with the large clean fields, well-ordered premises, punctual payments, and thriving aspect of the 500-acre districts. And reluctantly but firmly the agent's advice is followed, and another and another farm—another English household—is swallowed up by its neighbor."

How encouraging is the contrast to all this, presented by the farms of New England! It may be that our agriculture is neglected, it may be that our rural homes are deserted, it may be that our people have not yet learned the true value of their landed possessions, it may be that the activity, and vigor, and ambition of the young blood flowing in our veins, demand with feverish importunity a more exciting sphere of action than the farm affords—but the opportunity which an untrammelled ownership of the soil, an unlimited possession of the rights and privileges of citizenship, a system of agriculture and trade in which a strong and industrious and skillful arm is all the capital required—the opportunity which these give, is worth more than all the attainments of science and all the accumulations of wealth, in developing the universal prosperity of a free and enlightened and industrious agricultural community. God deliver us from that distress, which would drive our small farmers to seek relief and support in the complicated obligations of joint-stock companies. I would preserve the sanctity of the household as one of the foundations of society. I would protect the smallest landed possession as the

fountain of prudence, economy, contentment, virtue, and as the cherished spot on earth, within which the highest domestic happiness may find a home. The true genius of New England farming lies in this agricultural equality. Neither wealth nor ambition can furnish that power which will secure peculiar advantages to one farm over another. The mechanic who devotes himself to the implements of husbandry, labors here for the rich and the poor alike. We have no system of cultivation which is not open to all. There is the earth at our feet, and the broad expanse of sky above us, whose blessings are offered with the bounty of nature, to the highest and the lowest, who "by patient continuance in well doing" deserve their reward.

We have a right to be proud of New England farming so long as this principle of freehold and this opportunity for small farmers lie at its foundation. It is this which made our fathers illustrious for their prudence, their energy and their success. It is this which has enabled our people to retain their tenure of the soil, while they have furnished the bone of their bone, the flesh of their flesh, for the advancement of society in all its various enterprises. It is this which has preserved our farms in their integrity, through a long season of necessary neglect, and now offers them to a community already prepared to return to the safe and peaceful pursuits of agriculture. And it is this which will forever continue our farming community in that substantial and commanding position maintained by those who founded our institutions with pious care, and preserved them through all trial with that heroism and devotion which are characteristic of the rural population.

But, gentlemen, this is not all. New England farming is no trifling matter. That hardness of the soil which has deterred so many from entering upon its cultivation, demands and develops the most reliable worldly virtues. It is only by economy, judgment, foresight, and dilligence, that our farmers can hope to succeed. The earth here has no spon-

taneous productions ready at any hour to fall into the lap of an indolent and effeminate people. No hour, no day, no season provides an opportunity for idleness. Our people must be intelligent, frugal, industrious, in order to preserve their very existence. When you look abroad over the community you will find that all our institutions of education and religion, our churches and common schools are but the response to an imperative demand for intelligent christian effort to preserve and elevate our social organization, and to enable us to discharge our duties as heirs of the faith and the farms of our fathers. We have sought for well educated labor and have found it. And I can assure those who have not yet learned the true position of our farming, that no profession, no business on earth can boast of more industrious thought than is at this day devoted to the work of advancing the science of agriculture in New England, and of giving a right direction to the practical labor of the farm. Whatever success we meet with is not the result of chance, it is not an accidental reward. It is that triumph which can only attend man's footsteps as the fruits of patient, intelligent and industrious toil. Let us thank God, then, for our tenure of land, for our hard and rugged soil, for the capabilities of our agriculture and for that necessity which rests upon us as the cultivators of New England, to exercise those virtues which can alone preserve the great civil inheritance which has fallen to us as the sons of the farmers who landed at Plymouth and fought at Bunker Hill.

Do not understand me to say, gentlemen, that our mode of cultivation will admit of no improvement. When I look about me and see what has already been accomplished for the benefit of the farmer, I cannot but take courage for the future. Some of you now before me, can, I know, testify to the progress already made among you toward the development of that capacity of your farms, to which I have referred, as the first point to be ascertained in every good system of farming. In the preparation and composting and

application of manures, some of you have already become distinguished. In the breeding of animals peculiarly adapted to a particular location, you have not been excelled. The application of artificial manures has received some of the best practical tests at your hands. In drainage you have given the agricultural world, some of its most valuable lessons. But do not expect an indiscriminate system of high farming to be applied to all New England. Do not despair because drainage, and guano, and phosphates, and irrigation, and thorough breeds, are not everywhere profitable. There are large sections of our country where the low price of land and distance from the markets, demand the simplest and perhaps the most primitive modes of agriculture; where land raised to a high value by elaborate scientific improvements would be brought into unequal competition with land costing almost nothing; where time and money bestowed upon the choice crops demanded in the neighborhood of large markets would be wasted; where farming to be profitable must be to a great degree obedient to nature, and not a ruler and director of her forces. If we would farm well we must not misapply our labor. If we would farm profitably we must not forget the capacity of our farms.

And, moreover, be not discouraged when you are told that farming in New England is unprofitable, because it is obliged to compete with more favored regions. Go to the markets and you will find two classes complaining—the consumer and the producer; the former of the high price of products, and the latter at the low one. You can evidently learn but little there. But if you will examine the English prices current you will find that all the fruits of their high and expensive farming sell at a less price than our own, and yet English farmers are growing rich. The complaint that farming is unprofitable in this country, cannot therefore be well founded. It has unquestionably its origin among the indolent who always cultivate expensively, and among those who think they can carry on a farm in the

leisure hours taken from their legitimate business. Now this cannot be done. Let no man expect to make farming a secondary occupation with any hope of success. It may be a healthful and innocent recreation to the merchant who has become weary with his day's work at the counting room, and to the lawyer who escapes from the intricacies of the law to find repose in the lap of nature. But, as an occupation, it will not divide the hours with any other. Agriculture is jealous of her rights. And while she gives a liberal response to her devotees, she is always shy of those who would convert her solemn business into a pastime. Study your farms then and they will be profitable. Devote yourselves each to some special branch of farming, and however small and inferior it may appear in the outset, you will see it unfold under your care to the dimensions of large and profitable business. Dedicate your farm to the work for which it is specially adapted, and while the "sun shines upon the evil and the good," and the rain descends "upon the just and the unjust," while seed time and harvest last to you upon the earth, you may be sure of a just reward.

And, now, young men of Massachusetts, do not forget the true value of the farms, nor the true position of the farmers of New England. You have but to glance along the sad record of those who have left the old homestead for the chances of a more active life, and have long since fainted and fallen by the hot and dusty highway, to learn the lesson which experience will surely teach. While the world is full of temptations appealing to your ambition and your pride, the hills and valleys of your native land offer you an opportunity for usefulness and success, unattended by any false and deceitful allurements. It is New England farming, neglected and abused, but perennial still and just now starting on a new and high career, which calls upon you to accept the honorable position, and the substantial rewards, which it holds in its hands. The peaceful lives of the "rude forefathers of the hamlet," the story of their virtues, and the value of their example, are all before you.

" Oft did the harvest to their sickle yield,
 Their furrow oft the stubborn glebe has broke ;
 How jocund did they drive their team afield,
 How bowed the woods beneath their sturdy stroke !
 Let not ambition mock their useful toil,
 Their homely joys, and destiny obscure : "

for they were the founders of all that is dear to us, and of all that gives us distinction as a people. If you would be worthy of the rich inheritance they have bequeathed, if you would maintain the honor of their country, and yours, if you would transmit to your children those manly virtues which are the bulwark of your freedom, forget not the claims of your native soil. It will indeed be the golden age of our country, when the young men learn that in no way can they serve society so well, as by cherishing the associations, and developing the interests, and enlarging the influences, and establishing the customs, and sustaining the integrity of the rural homes of New England, where as in no spot on earth woman has assumed her true position, and where those virtues are cherished which can alone make us a free, happy, and prosperous people.







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